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## PROBLEMS PECULIAR TO THE JUNIOR COLLEGE<sup>\*</sup>

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The junior-college movement presents at least three relatively distinct forms which may well be distinguished in any discussion of the problems presented by these institutions. There is, first, the junior college built upon high-school foundations, whose beginnings are to be found in certain sporadic experiments made in Michigan and Minnesota during the late nineties. There is, second, the junior college standing alone on private or sectarian foundations as an independent organization, generally with one or more years of academy work represented in its program of studies. There is, third, the junior college as a differentiated part of the modern university. If one looks solely at the curriculum offered by each of these forms of junior college, the identities would probably far outweigh the differences, but if one has in mind the actual educational problems presented and the ideals aimed at, one must recognize very considerable divergencies.

The third type of junior college has had very few representatives. As it exists, for example, in the University of Chicago, where, so far as I am aware, it has been given the longest experimental test, it was inaugurated in the belief that a rather sharp break could be made between studies of a relatively elementary and secondary

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character and those of a strictly university order. Undoubtedly the dividing line between the *gymnasium* and the German university was in mind, the former standing for closely supervised routine forms of work, the latter the embodiment of free, specialized, professional, and research work. It was hoped that the example set by the University of Chicago would be widely followed, that many institutions would take upon themselves the obligation to do junior-college work alone, that ultimately the University might perhaps drop its own junior-college obligations and confine itself to work of genuinely advanced character. As a mark of the completion of the junior-college work, a certificate is conferred at a ceremony designed to impress both the student and the public with the fact that a definite and significant part of the educational process has been completed, and that on the foundation so laid down the student is now ready to proceed to really advanced studies.

Although this plan still exists, it has been somewhat buffeted by the winds of educational caprice, and it has never been very widely imitated. It would be a mistake to infer that this outcome indicates any lack of point in the attempt to differentiate the work of the junior college from that which follows it, for the tendency to recognize that the dividing line between purely academic and essentially professional training coincides substantially with the division between the junior and the senior colleges has spread very rapidly, at least throughout the central portions of the country. But it does mean that few institutions with an established four-year collegiate curriculum have thought it desirable to embody the distinction referred to in a special administrative organization. At present, however, there are indications of a disposition on the part of some important institutions to take this step long ago taken by the University of Chicago and to set up a distinct junior-college organization. The problems which have most significance in this type of institution are met with again in the other forms of junior college, and to them we therefore turn.

The junior college based upon high-school foundations has perhaps been developed too newly in this particular state to make a detailed examination of its merits, its defects, or its problems, of

as much interest on this occasion as those of the junior college of the second type named. In California, in Illinois, and in one or two other states the high-school experiment has been sufficiently tried out so that certain reasonably safe conclusions have begun to emerge, but for the reasons stated the speaker thinks it inadvisable to dwell upon them specifically at the present time. Incidentally we shall have several occasions to refer to them.

It is perhaps of no very great consequence whether in the case of an independent junior college it has sprung like Athene fully formed from the head of Zeus, whether it has grown up by a process of ambitious extension from an academy of the old-fashioned kind, or whether, finally, it has come about through a process of retraction and condensation as a result of which a formerly thin and emaciated four-year course has been reconstructed into a fairly robust and well-nourished two-year program. The minor problems of adjustment which are presented in the three cases are no doubt somewhat different, but the main underlying issues are substantially alike, and for purposes of general discussion, such as the present, there is profit only in the consideration of the latter.

These institutions are confronted by one issue educationally similar to that which our high schools have been facing for many years, and for that matter some of our colleges. Shall the curriculum of the independent junior college be treated as an end in and of itself, with certain tangible values attaching to it in its own right? Or shall it be molded with sole or predominant regard to subsequent academic work? Two powerful tendencies are always tugging at one another wherever this type of issue arises. There is, on the one hand, to be considered the claims of the student who has neither intention nor opportunity to proceed beyond the junior-college level and who claims with insistent and often strident tones that he be given certain forms of vocational training which he may forthwith turn to practical economic advantage when he leaves the school. Over against this is the claim of the student who definitely expects to go on into more advanced forms of collegiate work and for whom the junior college must provide the preliminary training, or else fail of the prime function for which the student has come to it. Even if the dilemma which is thus

presented be not perfect and if a reasonable compromise as between these conflicting interests be frequently found practicable, the issue nevertheless remains as to whether the junior college is to be master of its own fate, setting up its own ideals and realizing them as best it may, or whether it is to be, in the main, simply an adjunct, an understudy, of institutions of more advanced type.

It is the judgment of the speaker that dogmatism in dealing with any of these questions which are presented to the present generation of junior-college administrators would be wholly premature and unjustified. The wholesome thing at this stage of the game is unquestionably to formulate clearly the problems presented, to seek intelligently their solution, and to judge objectively, as time goes by, of the success or failure of the various methods investigated. The only unwholesome and pernicious condition is one of blind and aimless drifting.

With this position as a premise, it would be the judgment of the speaker that the junior college ought to attempt very definitely to formulate its own aims and ideals and, while keeping itself in touch both with the institutions below it and those educationally above it, to safeguard its own individuality as of the very essence of its life. We can hardly have too much of intelligent experimentation in these days of educational exploration, and well-considered, thoughtful divergence is far more wholesome than unreflective conformity to type. Conformity represents a vastly easier achievement, but it can hardly hope for equally valuable returns.

The instant, however, that one advocates divergence and independence of type one is likely to be misunderstood as indorsing vagaries of practice which have behind them nothing more substantial than the attempt to cater to and exploit some financially advantageous but possibly shallow fad, or to humor the ill-advised eccentricity of some president or head master or some well-to-do donor. What is contemplated in the phrase "divergence of type" is not for a moment to be construed as an encouragement to laxity of academic standards. Of this we shall say more in a moment, but the great menace which constantly hangs over the small junior college is the temptation to let down its standards, to hunt every



educational will-o'-the-wisp which promises fiscal prosperity, however transient.

In the case of junior colleges built upon high-school foundations the individualistic tendency to which reference has been made is already apparent in the disposition to carry still farther the movement already begun in the old conventional high-school organization, and so to mold the curriculum as to cater directly to whatever local interests and local opportunity may be judged to demand. While perhaps the most natural, because the most obvious, thing is substantially to copy forthwith the curriculum offered in the first two years of the ordinary college, the effort to individualize the independent junior college deserves serious consideration, whether from the point of view of serving local needs or from the point of view of developing specific educational ideals, particularly those of a vocational and professional character.

In the long run, however, it is probably more important that the quality of the training offered by junior colleges should be of unequivocal character than that each should undertake to differentiate itself sharply from other institutions. The differentiation is reasonably likely to take care of itself, provided the college does not conceive its task as consisting merely in the effort to copy the curriculum of some other institution held up as a model. There is no doubt that the intellectual tone of an educational institution tends to get set in terms of the character and standards obtaining in the most advanced work which it attempts. There can be no question, for example, that a vigorous graduate school reacts back very distinctly upon the quality and temper of the undergraduate instruction in institutions where the two exist side by side. Any four-year high school is similarly sure to feel the tonic influence of the addition of two years of more advanced work. It seems reasonable, therefore, to suppose that a junior-college organization carried on in geographic separation from senior-college work may find itself at some slight disadvantage, and this the writer believes to be unavoidably the case. On the other hand, as a very definite offset to this consideration is the fact that for the most part the junior colleges thus far established have had to deal with a relatively limited number of students, and that as a consequence of this a

much more detailed supervision of the individual pupil is often possible than the larger institutions covering a four-year course can give. The writer is not aware of any statistical study of the attainments of students developed in institutions like the Missouri junior colleges when brought into comparison with students trained in the standard four-year institutions. The statistics published by the University of California with reference to the achievements of students coming to the University from the junior-college high schools in that state are decidedly flattering to the latter when the training is compared with that offered by the first two years of the University itself. The conclusion of the matter is, then, that the separate junior-college organization undoubtedly loses something of stimulation and outlook as contrasted with the corresponding divisions of work in the four-year college; but this disadvantage may in practice be more than offset by the detailed care and supervision of the individual student often rendered possible by the smaller and more compact organization of this type of institution.

Another and absolutely vital element which must enter into junior-college procedure, if the results are to be sound and lasting, is the maintenance of the best possible standards in the qualifications of members of the faculty. In the last analysis this matter comes back to intelligent selection on the part of the officials responsible for appointment and to the salary scale which is established. Some men will undoubtedly always prefer to work in institutions doing the more advanced types of work, even though this involves some financial sacrifice. But, on the other hand, if proper salaries are paid, there will never be any difficulty in getting well-trained individuals to whom work in an institution of this junior-college type will strongly appeal, particularly if the point made earlier is taken into account, and such institutions commit themselves in part to the development of individualistic educational experiments, instead of attempting to conform to some narrow and stereotyped model, however intrinsically good such a model may be. This statement should obviously be qualified by the assumption that the junior college in question is prepared to offer adequate library and laboratory facilities and to call upon its staff for reasonable hours of work. Under these conditions there

should never be any long-continued difficulty in equipping the staff with men of adequate training and endowed with the real qualities of the teacher.

Three of the matters touched upon in the preceding paragraph, to wit, salaries, laboratories, and libraries, have been the subjects of very wide discussion in recent years, and attempts of various kinds have been made to state specifically the standards which a reputable institution should meet. In the present case it would be idle to enter on any elaborate exegesis of the situation. Suffice it to say that, in the judgment of the speaker, the independent junior college ought, if possible, to be equipped with even stronger scholars and more commanding personalities than those to whom in the four-year college is often confided the instruction of students in their first two years of college residence. Whatever it is necessary to pay such men ought to be given. And an institution which cannot see its way clear to the maintenance of such a salary schedule ought to search its heart very thoroughly before it decides to embark permanently on a junior-college enterprise. The great bane of American education from the district school up has been the superficiality and the crudity of the instruction offered, and it is wholly intolerable that a new educational movement like that of the junior college should be launched without committing itself absolutely to high educational standards. Let no one suppose that we mean to indict the entire pedagogical caste as made up of incompetents, but what we do allege fearlessly is that we have never remotely approached as yet the thorough preparation of anything like the number of teachers required to equip our educational machinery. The inevitable consequence has been the turning loose upon our children and young people of vast hordes of ill-trained teachers, many, perhaps most, of whom have been armed with wholly good intentions, but with little else.

In the case of the junior college based upon the public high-school organization there is divergence both of theory and practice as to whether the two parts of the educational organization should be kept wholly separate—the students, the faculty, and the buildings occupied being entirely distinct. Much is to be said on each side of the question. Favorable to the separation of the two is the

alleged ability to develop an *esprit de corps* which otherwise it is impossible or extremely difficult to achieve. It is said that you can secure a higher type of instructor for the junior college if it be wholly severed from its high-school antecedents. It is also alleged that to mix high-school students in the classes of the junior college, even though they be intellectually capable of carrying the work, is disintegrating to the tone of the college. Over against this it is alleged that where no boundary lines are drawn the abler students are encouraged to go forward as rapidly as their capacities permit, and that by keeping the two divisions of the work in close contact with one another a much more intelligent appreciation is gained by the teachers of the peculiar problems arising at the different levels of the educational process. It is further maintained that the transition from the fourth year of the high school to the first year of the college marks, in fact, no sharp intellectual change of level, and that it ought therefore to be minimized rather than magnified by the methods of our educational organization.

Whatever verdict may be returned in this particular case, the issues raised are undoubtedly familiar to many, if not all, of the junior colleges on private or sectarian foundations, for they generally maintain an academy or preparatory school out of which they receive a large proportion of their students. For them too, then, the question is one of vital consequence. The present speaker has had no such experience as would justify even a tentative opinion about the matter. It would be a mistake to suppose that either practice enjoys an absolute monopoly of advantages. The chances are that something is to be said for each form. We should probably have to decide in terms of the greatest amount of advantage as related to the least serious disadvantages. But there is no reason why we should not begin to make a careful study of the matter and, if possible, subject it to objective tests such as are presented by the achievements of students coming out of institutions administered in the two different ways when they enter upon more advanced forms of work. This would get us away from the purely subjective realm of opinionating and present us with materials which, if adequately gathered, would ultimately come to have convincing objective force.

In the nature of the case the junior college based upon the public high school is almost certain to be administered without residential halls. The privately endowed junior college is, on the other hand, likely to have these as one of its characteristic and important features. The very same sort of motive which now impels parents to keep a boy or girl at home for work in a local junior college, instead of sending him or her away to the state university or to some other large four-year college, may determine the placing of the student in a junior college under residential control. The decision is made partly because the institution is likely to be smaller and, as has been previously remarked, the supervision exercised is thus apt to be correspondingly more intimate, but it may be largely influenced by the belief that the supervision can be carried out under *residential* auspices of a more satisfactory kind than that offered in a larger institution. Although many people will object to the word, the frank fact is that the advantage looked for in such a case is that, in general, which may be hoped for from a good boarding-school—general deportment, social poise, the acquirement of etiquette, the mastery of the commoner social graces, tender plants which often grow with utmost difficulty in domestic soil, but which optimistic parents and still more optimistic head masters and head mistresses have the courage to believe will sprout and bear palatable fruit in the surroundings of a boarding-school. That these hopes are often dashed in the cruel school of experience does not prevent their springing again into life with every new generation and does not prevent the further and more reassuring fact that in many cases they are justified in their faith.

The speaker is too ill informed by personal observation to comment upon the peculiar social problems which belong to these junior colleges; but it is perfectly certain that such problems will present themselves and that they will be in some trifling details at least different from those which puzzle the high school on the one hand and the older college organization on the other. Snobbery, caste distinctions, club aristocracy, and all the other social fauna and flora known to educators are sure to appear in one form or another and to present perplexities which are likely to be more

rather than less acute where the college is fundamentally dependent upon the tuition income for its existence. Indeed, the most insidious danger to which the smaller institutions are exposed, whether they be on sectarian or purely private foundation, is that to which the small private school has always been exposed, namely, the danger of vicious subserviency to powerful patrons. The danger is familiar to everybody who knows anything of the history of private institutions, and need not be here discussed at length. It would be absurd to deny its reality. It must be reckoned with, be courageously faced, and this can be the more easily done where institutions of similar class combine in organizations like your own that may put before the public their common interests and their common ideals.

The motives which have for the most part been operative in bringing about the creation of junior colleges have been somewhat opportunist and have reflected immediate expediency rather than a thoroughgoing effort to reorganize American educational practice. There is, however, very little doubt that the general drift, both of theory and practice, has been toward such a redistribution of institutional jurisdiction as will give us, in place of the present grade school with a four-year high school and a four-year college course built on top of it, a realignment carrying the last two college years off into a group by themselves as the preparatory portions of training directed toward the professional degrees or toward the doctorate. The remaining two college years show in their turn a tendency to become affiliated with the fourth and perhaps the third year of the present high school, giving us a four-year institution made up roughly of the last half of the high-school course and the first half of the college course. Below this institution will perhaps ultimately be found the junior high school, reaching back to absorb one or two of the upper years of the grades and leaving at the bottom a graded school of six years' duration. The warrant for a division of educational jurisdiction approximately like that described has for its justification in part the educational experience of other civilized peoples and in part an intensive study of the important stages in the mental and physical growth of children. There are to be added to these considerations, in the case of the distinction between the junior college and the senior college, certain practical matters con-



nected with the ages at which young people can profitably enter upon the work of self-support. These matters, however, cannot be here discussed. Suffice it to say that the period at which junior-college training is completed under ordinary conditions represents a more strategic line of division than either that at the end of the present high school or that at the end of the present four-year college.

There is likely to be a certain artificiality and arbitrariness in one's thinking if the plane of division between the junior and the senior colleges be regarded too rigidly and as though it were set up by two mutually exclusive curricula. The fact of the matter is that just as the present Freshman year in college reaches back into the subject-matter of the high school, offering again much that the student might have pursued had time permitted, so the senior college must inevitably overlap in its subject-matter certain features of the present junior-college régime. The students who now present themselves at the conclusion of a junior-college curriculum have often pursued widely differing courses. As a consequence some of them are much more advanced in certain particulars and much less advanced in others. The senior college must be prepared to adjust itself to this irregularity of preparation, but in so doing it will necessarily offer a certain amount of work which the junior college at present contains. A single illustration may make clear the situation, with which everybody is presumably personally familiar.

A student who has gone up through the high-school course with two or three years of modern language will be able during his junior-college program to pursue literary and linguistic work of a decidedly advanced character. His fellow-student who has had only one such year's work, or perhaps none, will, during his junior-college course, be able to pursue only courses of a more elementary or intermediate character. The senior college is likely to feel itself obliged to care for this less well-trained student, and it will therefore offer intermediate courses in the literature concerned which are already to be found in the junior-college program. All this is by way of saying that wherever we draw our institutional lines we must recognize that they stand for certain large general values and



for certain administrative conveniences which we think worth while, but that they do not represent any such rigid segregation of subject-matter as characterizes, let us say, the separation of the strictly professional work in a law school or medical school from the general average of academic studies.

It is a common American prejudice to feel confidence in men rather than in measures, in personalities rather than in methods. No doubt this attitude often leads to excess and exaggeration, but it is probably fundamentally sound. Whatever your methods or your laws, the actual results attained are conditioned upon the intelligence, the energy, and the fidelity of the men called upon to put them in operation. So it may be said of the junior-college movement which we are now considering. It is, in the judgment of the speaker, part of a large and growing movement which promises to become an integral part of our educational scheme. But its present advantages and disadvantages, from the point of view of theoretical organization, are of the most trifling moment as compared with the caliber of the individuals called upon to direct and to administer it. If the men in charge of the junior-college enterprise be men of really modern training, of genuine intellectual outlook, and if they have both conviction and energy, the balance of good which will accrue from the movement will enormously outweigh any elements of evil. But unless there are thoroughly substantial men at the helm, unless the professional level of the teachers in these institutions be kept unequivocally high, and unless they be given at least respectable equipment in point of buildings, laboratories, and libraries, the outcome is sure to be simply one more of the failures or half-way successes with which educational history is strewn. Quality in the character of the instruction, quality in the character of the student admitted, and, most of all, quality in the student graduated from the institution, are the all-important considerations. Compared with this all purely formal issues, all questions of a merely administrative character, are wholly secondary. And among the qualities paramount to all others is that of rigid and precise honesty of statement regarding the conditions under which the institution is really administered. It is all very well to announce that an institution requires fifteen units of high-

school work for admission, but if it appears that when put to the test a student will not be refused who must enter conditioned in four or five such units, or if it proves that the scrutiny of actual units accepted is so superficial as to amount to nothing, the whole moral tone of the situation is sapped and undermined.

In conclusion, it seems clear to the speaker that despite the very various motives which have contributed to the inauguration of the junior-college movement and despite the wide divergence of type represented in the institutions now being administered under this title, there is underlying the whole situation a deep and widespread body of interests to which the new organization promises to give far fuller expression than has hitherto been possible. The movement is certainly in its main lines consonant with our best educational opinion, and it ought to receive, as no doubt it will, the most sympathetic opportunities to demonstrate its peculiar values.

## EXPERIMENTS IN SUPERVISED STUDY

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Dissatisfaction with the study habits of high-school pupils led me, as I suppose it has led every other manipulator of supervised-study schedules, to break with customary administrative programs. Investigations carried on by Giles, Reavis, Breslich, Minnick, Burch, and Alfred Hall-Quest with reference to the study habits of high-school pupils lead us to the following conclusions:

1. That high-school pupils do not, as an average, devote in and out of school much more than thirty minutes to the preparation of a lesson.
2. That very few high-school pupils preparing lessons at home establish regular and systematic study habits.
3. That the pupils who need most to establish proper study habits come largely from homes that fail to encourage or to make possible such habits.
4. That the larger percentage of pupils prepare lessons by the "close the book and recall" method of preparation.
5. That the slower pupils in mathematics classes conducted on the no-home-study plan do better work than in classes conducted on the home-preparation plan.
6. That high schools under the usual form of schedule do not offer instruction in "how to study."

### I. MECHANICS OF SUPERVISED STUDY

The lengthened-divided-period plan is probably the best-known supervised-study scheme. Its technique and operation are described in Johnston's *Modern High School* and in the December number of the *School Review*, 1916.

This plan of supervised study was used by the writer as early as September, 1911. Briefly described, the seven or eight periods

of the orthodox high-school schedule are telescoped into four or five periods, and each resulting period then stretched into one of combined recitation and study. Such a schedule generally consists of five periods from sixty to eighty minutes, or four periods from eighty to ninety minutes, in length. The school day is lengthened by one hour. Beginning with five sixty-minute periods of combined recitation and study, I was soon convinced that twenty minutes for study was not long enough. It was neither hay nor grass.

The following year the five periods were lengthened to seventy minutes and divided equally between recitation and study, and subsequently the schedule was extended to seventy-five minutes with forty minutes for recitation and thirty-five for study.

After experimenting with supervised study over a period of four years I made the following recommendation to the Board of Education of Wichita, Kansas:

The statistics of scholarship accumulated over a period of four years seem to indicate conclusively that the administration of a supervised-study schedule reduces the percentage of failures and eliminations. After evaluating all of the statistics and weighing carefully all of the objections urged against the plan, I recommend that the system be continued and suggest the following modification of the system:

First, allow forty to forty-five minutes for recitation.

Second, arrange at least forty minutes for study, instead of thirty, and under no circumstances allow the teacher to trespass upon the pupil's study time.

Third, as soon as possible train teachers in methods of teaching pupils to study.

Obviously two prime objections stood against supervised study after several years of trial in one school: one against the mechanics of the scheme and the other against its dynamics.

Mechanically supervised school study to be effective requires an adequate period for its administration. Nothing less than forty to forty-five minutes will suffice. As one high-school boy put it, "Our present thirty-minute supervised-study period (when the teacher does not steal it) leaves us with little dabs of lessons left over, with just as many books to carry home, and the best part of the day gone."

How to get an eighty- to ninety-minute period without lengthening the school day beyond four o'clock and beginning it before eight-thirty is a problem in the mechanics of supervised study. It may be solved in two ways:

1. A five-period program may be operated on the floating- or displacement-period basis. For instance, the fifth period may displace in turn each of the four preceding periods on each successive day of the week, and on Friday it would displace itself. This results in a four-period-a-day schedule or a maximum of twenty recitations per week for each subject. This is my present method of securing a four-period-a-day schedule in the high school at Springfield, Illinois.

2. Another way is to arrange a four-period-a-day schedule with a maximum of twenty-five recitation periods per week. This is the simplest and best method, but is evidently 25 per cent more expensive in teaching force, and is consequently prohibitive in many schools. This plan is explained in the *School Review* for December, 1916, by Principal Roberts.

It may be conceded then that the mechanics of supervised study for both large and small high schools may be solved without increasing the teaching force. Six-, seven-, or eight-period-a-day schemes may be transformed automatically into a corresponding four- or five-supervised-study-period schedule.

## II. DYNAMICS OF SUPERVISED STUDY

Our problem in dynamics still remains, however. After we have mechanically constructed a period for supervised study, how are we going to secure it? How are we going to teach pupils how to study? What will it profit a school to have gained a supervised-study schedule and missed supervised study itself? This is the all-important question. On this answer hangs all the law and gospel of supervised study. Whipple says:

Students in both high school and college have been studying, it is true, for years, but too often they have not been studying efficiently, have not formed right habits of mental work, and indeed do not even know how to go about the development of an adequate method or plan of such work. . . . It is safe to say that failure to guide and direct study is the weak point in the whole educational machine.

The lengthened-divided-period plan of schedule provides in itself the *conditions* necessary for effective study by making both time and place for study regular and automatic and by increasing the opportunity for focalization and concentration of attention. Immediately and automatically following a recitation with an opportunity to prepare the next day's lesson under the direction of the same teacher will not *ipso facto* create an efficient learning response on the part of all students, but it will *make more probable* such a response.

It has been erroneously assumed by many writers that supervised study was synonymous with effective study. It has been taken for granted that schools administering supervised-study schedules taught pupils how to study. There is a wide difference between *more* study and *effective* study. Supervised-study schedules may secure the former and miss the latter. Effective study depends upon many elements, among them proper time and place, concentration, reading ability, organization habits, questioning habits, and memory. Supervised-study schedules mechanically provide for the first two and more nearly secure the third than do other devices. The remaining elements involved in the technique of study are not necessarily concomitants of so-called supervised study.

Time, place, and mental attitude—these three are the triune planks in the supervised-study platform. But let no supervised-study-schedule manipulator delude himself into believing that these three planks constitute the whole platform of effective study. No mechanical devices ever invented will solve this trick in the dynamics of learning known as "how to study."

In 1915 I advised that teachers should be taught the methods. The following year "Why and How to Study" blanks were pasted in every pupil's books with varying instructions for the different subjects. The technique of learning was analyzed, and teachers and pupils were made familiar by printed instructions of how to master it best. By telling him *how* to do it we might as well expect a boy to get the trick of throwing a twelve-pound shot. Two factors are necessary in mastering any process—learning included: (a) capacity and (b) artistic exercise of one's capacities.

Evidently a supervised-study schedule is no *sine qua non* for securing the factors which depend so largely upon the personality of pupil and teacher. Effective study so often appears the possession of the Lincolns and the Greeleys who knew no school schedules that one should speak guardedly about administrative-school devices solving any dynamic problem in education. However, better study, more study, concentrated study, are desirable goals in school administration, and the improvement in the use of this lengthened-divided period was the writer's next experiment.

The origin of the plan I am about to describe grew out of study of the classroom exercise in typewriting. In the typewriting class pupils remain in the same group, but are individually apart. A pupil taking typewriting may stay out of school for two weeks and return to the same group in his mathematics, Latin, and typewriting. In the last subject he starts in exactly where he left off with a distinct realization that his muscular-mental co-ordination has been impaired, while too often in the first two subjects he takes up the advanced work with his classmates apparently without any particular sense of loss. Why should he, if he makes his grade? Does he not figure out a distinct gain?

Two things differentiate the mechanics of the typewriting exercise from the mathematics and Latin recitations: (a) consecutive, daily assignments which the pupil may follow without the guidance of a teacher; (b) individual responsibility and progress or an accounting for individual differences. Apply these same principles to academic subjects and it becomes necessary to provide printed daily lesson assignments and to check upon individual preparation of these daily assignments. One added factor, however, appears with the academic subject which uniquely distinguishes it from the manual, namely, the *expression* of the lesson ideas.

In typewriting the pupil during the exercise concretely and muscularly shows the teacher how well he understands the lesson. In academic subjects the understanding must first be tested by language expression. There is no machine yet invented for eliminating this language-expression exercise. Consequently for all academics there must always remain the recitation period. *Throwing one's ideas into a language mold is not the same as expressing*



*one's ideas by mechanical means.* For this reason the recitation period must always be stressed.

These common and distinguishing elements of the manuals and the academics being considered, it appears that recitation groups should be organized on the basis of the preparation of definite unit assignments. Epitomized, *pupils should not recite until they have prepared.* This called for a scheme that involved the execution of the following desirable goals already set forth:

A. Preparation: (1) auto-assignment of daily lessons; (2) advancement according to individually tested preparation.

B. Recitation or expression: (1) recitation only over work previously prepared; (2) recitation in groups selected on basis of preparation.

The evolution of a scheme that would incorporate these ideas resulted in what is now known as the Springfield laboratory-recitation plan.

### III. THE LABORATORY-RECITATION PLAN OF SUPERVISED STUDY

It will be impossible in the narrow limits of this paper to do more than outline the laboratory-recitation plan of supervised study now in operation in the Springfield High School. The laboratory-recitation plan is based on the fundamental idea that recitation groups should be organized on the basis of preparation. Pupils need not recite on the day's preparation, but the recitation for the day is upon work previously prepared and tested. The recitation teacher knows that when his group assembles each and every pupil has previously prepared and has been checked in the work to be recited upon, otherwise the pupil would not be in the group. This is accomplished by the following *modus operandi*:

A. *Co-operating laboratory-recitation teachers.*—Forty or fifty pupils are assigned to a certain laboratory-recitation period operated by two teachers—one the laboratory, the other the recitation, teacher—in adjoining rooms. While the laboratory teacher is supervising the preparation of lessons during the ninety-minute period, the co-operating recitation teacher is conducting recitations with groups of pupils taken from the laboratory on the basis of

their preparation. For illustration, each Friday the laboratory algebra teacher in the second period will give the co-operating recitation teacher of that class and period the advancement of the slowest pupil in each of two or three recitation groups previously determined on the basis of laboratory preparation. The recitation teacher prepares his work for the following week on the basis of this information. If there are three groups, the recitation teacher devotes thirty minutes to each group; if two groups, forty-five minutes. The pupil spends either one-half or two-thirds of each period in the laboratory, the time depending upon the number of groups into which the recitation has been divided, and the remaining time in recitation.

*B. The laboratory technique.*—Two things must be provided for: auto-assignment of lessons and checking of pupils on the lesson assignment. The first requires the printing of the daily lessons in manual form and the second the checking of pupils by laboratory teacher and student assistants. The following are sample lessons taken from the algebra and Latin manuals:

#### FOR EXERCISE 52

##### DIFFERENCE OF SQUARES—INCOMPLETE MIDDLE TERM

(1) Is the expression  $x^4 + x^2y^2 + y^4$  a trinomial square? Why? What is a trinomial square and how recognized? What could be added to the expression above to make it a trinomial square? If such a number is added why must it be subtracted at the same time? How do you always tell what this number is?

(2) Factor the above problem:

Solution:

$$\begin{aligned}
 & x^4 + x^2y^2 + y^4 \\
 &= x^4 + x^2y^2 + y^4 + x^2y^2 - x^2y^2 \\
 &= x^4 + 2x^2y^2 + y^4 - x^2y^2 \\
 &= (x^2 + y^2)^2 - x^2y^2 \\
 &= (x^2 + y^2)^2 - x^2y^2 \\
 &= [(x^2 + y^2) + xy][(x^2 + y^2) - xy] \\
 &= [x^2 + y^2 + xy][x^2 + y^2 - xy] \\
 &= [x^2 + xy + y^2][x^2 - xy + y^2]
 \end{aligned}$$

How does this carry out the suggestion above as to adding and subtracting at the same time?

(3) In the second line of the above solution you should recognize the same type of problem as Exercise 50 and apply the same principle to the solution.

## LESSON XIV

(Sec. 91-92-93-94-95; vocab. sec. 95) (Review vocab. 86, 90)

1. How does the declension of nouns ending in "er" and "ir" differ from the declension of "servus"?
2. How do we know when to keep "e" in the base and when not?
3. How are adjectives in "er" declined?
4. What forms of the adjective show whether we keep "e" in the base or not?
5. Prepare Application Card XI.

After the pupil in the laboratory has studied algebra lesson No. 52 or Latin lesson No. XIV, he is checked on his understanding of the lesson by a few individual test questions. If the pupil's preparation is satisfactory, he then calls at the clerk's desk for application cards No. 52 or No. XI and sets about to solve the exercises. These particular application cards are herewith reproduced:

## CARD 52

Factor the following:

- |                               |                                  |
|-------------------------------|----------------------------------|
| 1. $x^4 + x^2y^2 + y^4$       | 11. $a^4 - 11a^2 + 1$            |
| 2. $4x^4 + 3x^2y^2 + y^4$     | 12. $64a^4 + 1$                  |
| 3. $9x^4 + 15x^2y^2 + 16y^4$  | 13. $4x^4 + y^4$                 |
| 4. $25x^4 - 6x^2y^2 + 9y^4$   | 14. $x^4 - 107x^2y^2 + 169y^4$   |
| 5. $x^8 - 8x^4y^4 + 4y^8$     | 15. $x^4 - 95x^2y^2 + 169y^4$    |
| 6. $25x^4 - 11x^2 + 1$        | 16. $x^4 + 4$                    |
| 7. $x^{16} + x^4y^2 + y^4$    | 17. $25a^4 + 116a^2b^2 + 144b^4$ |
| 8. $x^{16} + x^8y^8 + y^{16}$ | 18. $64a^4 - 1$                  |
| 9. $16x^4 + 52x^2y^2 + 49y^4$ | 19. $4a^2b^2 - 5ab + a^3b^3$     |
| 10. $1 - 3a^2 + a^4$          | 20. $25x^4 - 5y^4$               |

Latin 9'

## APPLICATION CARD XI

- I. 1. Cornēlius pueris scūta et loricas dat.
2. Domini filia pulchra in agris laborat.
3. Est cōpia frūmenti in oppidō.
4. Lēgātus est apud legiōnāriōs sed servus est cum viris.
5. Liber Germaniae populus Rōmānōs non amat.
- II. 1. The pretty girls are hastening with the boys to the town.
2. The men of Germany give plenty of money to the sons of the master.
3. The friends of the free boys carry spears and shields.
4. Who is the man with the horse and cart?

The solutions of exercises are checked by laboratory teachers and capable student assistants, and no pupil gets credit for the completion of a lesson and its applications until the laboratory requirements are satisfied. Pupils advance from lesson to lesson as fast as they are able. Initiative is encouraged, and the brighter students on the auto-assignment basis need little assistance. Other pupils, particularly the slow ones, are given the assistance needed, either individually or in groups.

Already a technique of manipulating laboratory work has developed which it is impossible to describe within the limits of this discussion.

*C. Recitation technique.*—As already stated, the co-ordinating recitation teacher in any period has pupils assigned to him on the basis of laboratory advancement. In some classes it is better to make three divisions and in all, two. The recitation teacher does not conduct recitations on work concurrently prepared in laboratory, but upon prepared work, antedating the recitation, in the case of some students, several days. This, we believe, is a good pedagogical practice. Reciting upon material which has been simultaneously prepared encourages cramming and rote memorizing. Recitation upon work previously prepared, but not for the particular recitation, develops selection, organization, and emphasis of certain lesson materials; while familiarity with advance material occupying the immediate laboratory attention affords an opportunity for more reflective, penetrating, and discriminating judgment upon the subject-matter of the recitation.

The recitation groups are flexible; pupils reciting in the advanced groups often find themselves demoted to a less-advanced group if it is discovered that their laboratory advancement has been too rapid. On the other hand, pupils are promoted to advanced recitation groups if it is found that their preparation warrants it.

*D. Outstanding problems.*—The specialization upon preparation and the conduct of recitation in groups determined by laboratory checks has caused one problem to stand out conspicuously. I say stand out because I believe it has always existed, but we have not been so painfully aware of its existence. Under this system the pupils unable to do the minimum, either because of lack of capacity

or inability to exercise capacity, come at once into conspicuous view. We have repeatedly said, "Given time, and attention, sympathy, and properly motivated teaching, and any pupil will respond." Our system provides these essentials better than the old, but our problem in this respect is more acute than before. We actually know how long it takes some pupils to prepare their lessons, because the system calculates it. There must certainly be a point beyond which it is waste and useless effort. If a pupil cannot get thought from the printed page, then, instead of assigning him to regular literature and history courses, he should be assigned to a special class where the preparation of the lesson consists primarily in assistance in reading and selection of ideas from the page, and the recitation is an exercise in thought development and expression. This is the direction in which we are being pointed at present, and another year may see undertaken some experiment of this nature.

#### IV. A CONCRETE ILLUSTRATION FROM THE LABORATORY- RECITATION PLAN

Perhaps the best way to illustrate the application of the foregoing plan would be actually to take a pupil and carry him through both laboratory and recitation. This I have undertaken to do with a certain pupil, Robert, who prepares his oral-theme outline in laboratory, recites upon the same in his recitation group, reduces the same to writing in laboratory, receiving his criticism thereon and, finally, re-checks his written theme from these corrections. Ordinarily such a process would extend over a period of two days. Here Robert, for the purpose of this paper, continued his progress through laboratory and recitation during one afternoon, much to the loss of equilibrium for Robert, as he so declared in recitation.

##### A. LABORATORY ASSIGNMENT

###### CARD XX PART 2

Plan to tell orally to the class the most exciting adventure that has happened to anyone whom you personally know.

## FIRST OUTLINE SUBMITTED BY ROBERT

## WEALTHY FARMER HAS NEAR ESCAPE FROM DEATH

*The lead:* James Branden, a wealthy farmer living near Springfield, was saved from death yesterday when he leaped to an incoming passenger train.

*Situation:* Mr. Branden had gone to town on business and then returned home.

*Climax:* His car stopped on train tracks and the engine refused to work. Passenger train neared the automobile of Branden.

*Dénouement:* He saved his life by springing from his car to the engine of the passenger train.

## LABORATORY TEACHER'S CRITICISMS OF OUTLINE

T.: What did you intend this first line for?

P.: The first line is supposed to be the headline.

T.: Do you see any mistake in grammar?

P.: Yes—near.

T.: What part of speech is near?

P.: Verb.

T.: Is it used there as a verb? How is it used?

P.: It should be an adverb.

T.: What does it modify?

P.: In this sentence, escape.

T.: What part of speech is escape?

P.: Noun.

T.: What do you call a word that modifies a noun?

P.: An adjective.

T.: Near is what, according to the dictionary?

P.: Near means close.

T.: What part of speech is near? May it be used as an adjective?

P.: It probably could.

T.: Where would you look to find out? Look that up.

Pupil consulted dictionary and found near used both as an adjective and an adverb.

T.: What word could you substitute for near?

P.: Narrow.

T.: Is there a difference between the two?

P.: Yes. Near does not explain so much as the word narrow.

T.: Your lead is good. Under your situation, this should be, "He started and was returning to his residence." Why?

P.: Because he had not reached his home when this happened. I could say, "Mr. Branden had gone to town on business and started to return to his residence."

[The remaining portions of an extended conference are omitted.—EDITORS.]

## OUTLINE FOR SECOND THRILLER (PREPARED IN LABORATORY BY ROBERT)

## WEALTHY FARMER HAS NARROW ESCAPE FROM DEATH

*The lead:* James Branden, a wealthy farmer living near Springfield, was saved from death yesterday when he leaped from his automobile to the engine of an oncoming passenger train.

*Situation:* Mr. Branden had gone to town in his automobile on business and then started to return to his residence.

*Climax:* His car stopped on the railroad tracks and the engine refused to work. The passenger train neared the automobile of Branden.

*Dénouement:* He saved his life by springing from his car to the engine of the passenger train.

## B. RECITATION

(Robert gives oral theme in recitation group)

## A SECOND THRILLER

James Branden, a wealthy farmer living near Springfield, yesterday had a narrow escape from being killed. He was coming to town in his car. In the center of the railroad tracks it stopped. Mr. Branden tried to get the engine to work by means of the self-starter. He could not move it. He saw a passenger train approaching, but waited two or three minutes and grabbed a hold on the engine. Thus he was saved from being killed. In five minutes the train stopped and he regained his conscience. Now he was taken from his situation unhurt.

## CLASS CRITICISMS

He was familiar with his outline.

He followed his outline well.

It was good.

It held us in suspense.

T.: Another criticism to show its good points?

He had a good lead.

T.: Did he accomplish his purpose?

The thrill was all right, but was illogical. He saw a passenger train and waited two or three minutes and jumped on the car and in five minutes the passenger train stopped. Rather slow for a passenger train.

T.: What about the situation? Was that clear? What about the dénouement?

P.: Those were clear.

He said, "regaining his conscience" (sense or consciousness).

He said, "git and grabbed a hold."

He said, "He was taken from his situation unhurt."

He said, "Living near Springfield yesterday."



Change of verb tenses. Started with past and then said "he now. . . ." Incorrect pronoun: "When he got to the railroad track it stopped."

ROBERT: *I had to go so slow for the stenographer to get it that I did not give it the way I wanted to.*

#### A. ROBERT'S NEXT LABORATORY EXERCISE—REDUCES ORAL THEME TO WRITING

##### WEALTHY FARMER HAS NARROW ESCAPE FROM DEATH

James Branden, a wealthy farmer living near Springfield, was saved from death, yesterday, when he leaped from his automobile to the engine of an oncoming passenger.

Mr. Branden had left his farm, in the early part, in his automobile for town to attend to some business and had now started to return home by the way of Cook Street, a street which leads to his farm.

When his car reached the center of the railroad track on Third Street it stop. He tried to get the engine to work by pushing the self-starter with his foot, but it would not work. He then started to get out of his car to examine the engine, but so frightened, by the sight of an oncoming passenger train that he could not move hand or foot.

Finally he regained his senses and saw that the only way for him to save his life was to jump. Just as the engine of the passenger train was about to strike his car he sprang from his seat to a rod that was on the side of the engine and held there till the engine came to a stop.

The engine of the passenger train brought the engine to a stop and removed Branden from his place.

It was found that Branden received no injuries.

#### LABORATORY CORRECTIONS BY ROBERT

1. A comma is needed here. Rule. Every appositive should be set off by a comma.
2. Word omitted, train. This is necessary to make sense.
3. Words omitted, "of the day." These are necessary to the sense.
4. Mistake in grammar. I should use the past tense, stopped.
5. Word omitted, was. It is needed to finish the verb.
6. A new paragraph should not begin here, for this is not a new thought. It belongs with the sentence that precedes it.
7. Mistake in spelling. It should be engineer.

The experiments with supervised-study schedules may be summarized as follows: (1) The mechanics of supervised study consist in securing a regular time and place for study and a concentration upon study during the school day. This is provided by the

supervised-study schedule in which the period is from eighty to ninety minutes in length. The mechanical means of accomplishing this without unduly lengthening the school day has been explained. (2) The dynamics of supervised study refers to the mastery of the technique of study or to the art of how to study. The writer has never flattered himself into believing that so-called supervised study was synonymous with effective study.

Mr. Roberts in the December, 1916, *School Review*, in concluding his article on supervised study in the Everett High School makes a very significant statement:

We believe that supervised study in the form we have it is a success, but not the final solution of this great problem; it is a step, an arrow, at once an indication and the recognition of a tendency to correct one of the weak spots in our work. It will serve its day and purpose, and be superseded by some plan which will eliminate the difficulties and add to the advantages which we have noted for the double-period plan.

This is a view that I have always shared with reference to supervised-study schedules. The modification of supervised study to provide for individual differences under the laboratory-recitation plan outlined in this paper is in my opinion a direction of the "arrow" a little nearer the goal of effective study.

## A STANDARD OF INTERPRETATION OF NUMERICAL GRADES

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A great deal has been written regarding methods of standardizing teachers in the grading of pupils, and various schemes are in use whereby teachers are constrained to exercise arbitrary rules of judgment in order to make the results of their grading fulfil certain theoretical conditions.

We are told, for example, that, in some large American colleges and universities using forms of the so-called "Missouri system," it is expected of teachers that a specified percentage of their assigned grades shall be above 90, another specified percentage between 90 and 80, etc. (or the equivalent of these figures in terms of letters), and that the distribution thus sought is approximately that of the familiar, symmetrical "probability" or "error" law.

It is not the purpose of this paper to discuss the merits of either numerical or literal grade assignments, or of the categories "excellent," "good," "fair," etc., as against any sort of grade scale. We shall start out with the simple fact that among the great masses of our school and college teachers and pupils, the one common language in which the scholarly attainments of pupils are expressed is a scalar one, which may as well be numerical as literal or otherwise arbitrary. If we, who live in the Middle West, read in a New York magazine that a certain man entered college with an average grade of 95 in his preparatory work, we know pretty well what that means; and so it is the country over. And it will probably be a long time before the people at large will be educated to any other, radically different mode of expression.

The problem now presented is that of establishing a method whereby grades assigned by one teacher can be intelligently compared with those assigned by another, and all brought to a common standard. The writer does not believe that this can be accom-

plished by forcing teachers to conform to a theoretical system, the scientific basis of which they do not understand, and which ignores those human elements of sympathy and encouragement which make teaching the noble profession that it is. On the contrary, we propose that the teacher be let alone, left to exercise her own free mode of rating; we shall show how the grades of each teacher can be easily translated into terms of a common standard (and even into terms of the probability scale, if desired) without that teacher's knowing anything about it. Indeed it were better that she should not know her own peculiarities in this respect; for let her once be conscious that she is not quite normal in the matter of grading, and she will immediately begin, though perhaps without realizing it, to "doctor" her ratings and give constrained instead of natural judgments.

Let us first examine the ordinary percentage scale of grading and the results of its use. There can be no doubt that if it were possible to estimate accurately what is called scholarship, or proficiency, and express it in units, it would be found to have in the long run the symmetrical distribution of the theoretical "error law," like shots to right and left of a target, or the statures of people above and below the average.<sup>1</sup> But the fact is that teachers do not, in grading, take the same attitude toward good students and poor ones. Almost without exception, they mark the poor students higher in proportion to their attainment than they do the good students, thus revealing either the element of sympathy already referred to, or some less worthy motive, as of passing along dull pupils in order to get rid of them. This tendency has been proved in two independent ways: (1) the testimony of the teachers themselves, many of whom have been questioned on this point and have almost invariably admitted being conscious of an inclination to "shove along" the poor pupil and grade him higher than he deserves; and (2) the statistical evidence based upon a study of many thousands of grades assigned by both public-school and college teachers. This latter investigation has given some very interesting results, and is the basis of our proposed method of standardizing teachers' assigned grades.

<sup>1</sup> See Weld, *Theory of Errors and Least Squares*, chap. iv.

The grade lists used in this study were obtained in part from college records and in larger measure from the records of the public schools of Cedar Rapids, kindly furnished by Superintendent J. J. McConnell for the purpose, over one hundred thousand individual grades being tabulated from lists assigned by about one hundred and fifty teachers over a period of several years. The public-school grades were numerical, each grade being assigned to the nearest multiple of five; for example, the grades 73, 74, 75, 76, 77 were all called 75, while 78, 79, 80, 81, 82 were called 80, etc. The college grades were literal, each having, however, a well-understood approximate numerical significance. The work of tabulation was carried out by Mr. Leslie L. Fishwild in 1915, his summarized results being as follows:

Out of over 100,000 grades, practically none were below 50.

1 per cent were 50			13 per cent were 80				
1	"	"	55	13	"	"	85
2	"	"	60	25	"	"	90
2	"	"	65	23	"	"	95
5	"	"	70	9	"	"	100
6	"	"	75				

These results are shown graphically in Fig. 1, the unsymmetrical character of which is unmistakable evidence of the tendency to crowd poor students up the scale. Fig. 2 shows the normal probability distribution assumed to be ideal by the users of that system.

It is interesting to study in this manner the grades assigned by individual teachers, as their personal characteristics in grading are brought out very distinctly in this way. Some show much greater crowding than this average, some much less; occasionally a teacher will show very erratic tendencies; and very rarely one is found whose grade distribution is approximately symmetrical as theory would demand.

The writer has taken up the subject of this actual grade distribution as a mathematical problem, basing the theory upon certain very simple assumptions involving three separate personal characteristics of the individual teacher in grading, the result being a formula that agrees very closely with the statistical facts. It has been found in practice, however, that one of these characteristics,

viz., the range to which practically all the teachers' assigned grades are confined, undergoes little variation and can therefore be assumed as constant for all teachers, which leaves but two personal characteristics to be determined in order to find the type of marker to which the individual teacher belongs; as a mathematician

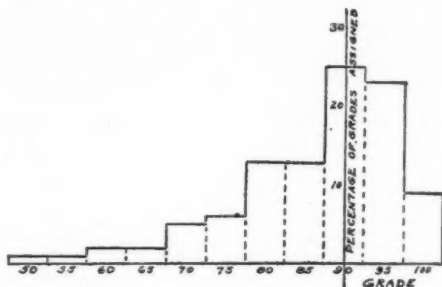


FIG. 1

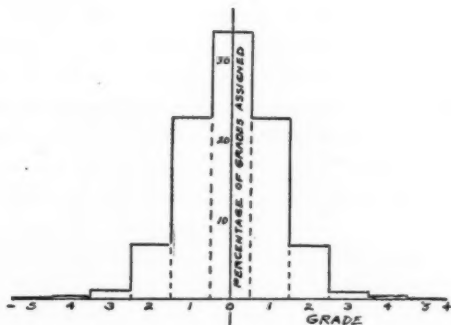


FIG. 2

would express it, only two parameters are necessary in the teachers' grade-distribution formula. This mathematical work may be published more appropriately elsewhere; but its outcome is the simple and practical method now to be presented, whereby any superintendent or principal or college registrar can determine the teacher's type of grade assignment from a single semester's grades, and be able thereafter to translate the grades given by that teacher

to a standard scale, which may be used whenever a student's actual ranking is to be determined.

For the purpose of this method the data are tabulated in a more convenient form than the foregoing. Instead of finding the percentage of a teacher's grades which are, say, 70 or 65, as in the mathematical treatment referred to, we find the percentage which are *70 or above*, *65 or above*, etc., and tabulate these values. It was found that of the thousands of grades examined by Mr. Fishwild, vary approximately

100 per cent were 50 or above				83 per cent were 80 or above			
99	"	"	55 " "	70	"	"	85 " "
98	"	"	60 " "	57	"	"	90 " "
96	"	"	65 " "	32	"	"	95 " "
94	"	"	70 " "	9	"	"	100
89	"	"	75 " "				

The passing grade being 75, 11 per cent of the grades denote failure.

While it would, of course, be desirable to make a selection from various localities, it is fair to presume that this distribution is not far from normal the country over, since the teachers assigning these grades were not by any means all of local origin. At any rate this distribution, even if not quite the average for the United States, will serve our purpose as a reference point and means of comparison. It is shown graphically by the heavy curve in Fig. 3, along with the corresponding curves for certain individual teachers, which are dotted.

Now the foundation principle of our method is that *we may expect any one large group of unselected pupils (as those handled by one teacher in a year) to have about the same actual scholarship, on the average, as any other similar large group.* This means that radical differences observed in the grade distribution of one teacher from that of another have their origin in the characteristic grading methods of the teachers themselves rather than in the pupils they handle. (If in any case there is reason to believe otherwise, due allowance should of course be made for the fact in applying the method.)

We may now proceed to classify teachers into types, according to their peculiar characteristics in grading. This may be done as



minutely and over as large a range as we think best, but the writer suggests the use of twenty types, consecutively numbered, of which the middle ones are nearest to the normal, or standard. It is believed that this number will suffice in practice. These types are identified, as before mentioned, by means of two simple charac-

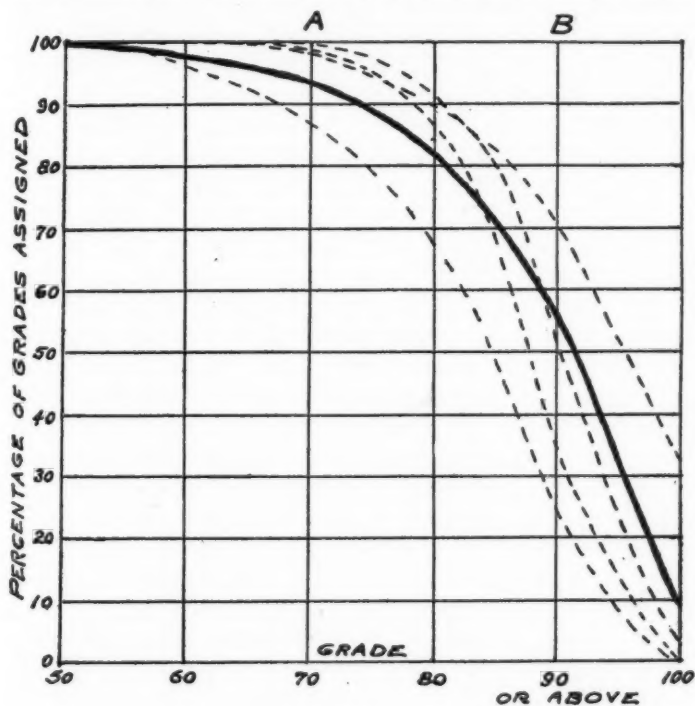


FIG. 3

teristics, for which I have selected (A) the percentage of the teacher's assigned grades that are 70 or above, and (B) the percentage that are 90 or above. (The former, A, is more important in identifying the type than the latter, B.)

For the average or standard distribution that we are using, A is 94 per cent and B is 56 per cent, which, by the way, is rather surprising when we think of it. It is an actual fact, however, that

56 per cent of all the grades examined by Mr. Fishwild were 90 or above, which exhibits more strikingly than ever the general tendency to crowd up the scale.

For individual teachers, A and B will have different sets of values, and, after considerable study of actual distributions, the twenty types shown in Table I (at end of paper) have been selected as fairly representative of the range likely to be encountered. In general the first types correspond to the consistently low markers and the last to the consistently high markers, while the middle type (11) is about normal. Provision has been made, also, for certain types that for some reason are high markers of good pupils and low markers of poor pupils, or vice versa; it is certain that such types exist. In practice a judicious combination of two types may sometimes be found satisfactory with gradual transition along the scale from one type to the other.

The next step in the development of the method was to compare the grade distributions corresponding to the respective types with the standard distribution. Familiarity with the form of the distribution curve (Fig. 3), through plotting many individual grade distributions, made it possible to trace curves with fair accuracy when only the two characteristic points at 70 and 90 were given. A number of such curves are shown dotted in Fig. 3. The grade comparison then became a simple matter. For example, it was found from the curve for Type 16 that grades of 80 or above are given by teachers of this type in about 92 per cent of their gradings, while we observe that this same percentage of the gradings of the standard marker (Type 11) are 73 or above. We may therefore conclude that the grade 80 given by a teacher of Type 16 corresponds to the grade 73 on the standard scale of marking. In a similar manner, if a teacher of Type 6 gives a pupil the grade 80, it is equivalent to 83 on the standard scale, this teacher being a low marker.

Proceeding in this manner, it has been found possible to construct an approximate table (Table II), whereby such translations may be made at a glance as soon as the type to which the teacher belongs has been decided upon. Grades intermediate between those provided for in the table can be easily interpolated.

The possession of Tables I and II, with a semester or so of grade reports from the school system, will be sufficient to enable any school superintendent or college administrator to accomplish the desired standardization and comparison. The method of procedure may be summarized, for practical use, in the form of the following directions:

1. To standardize a teacher's grading, examine a considerable number of that teacher's grades (the more the better), ascertaining (A) what percentage of them are 70 or above, and (B) what percentage are 90 or above.
2. Find from Table I the type that corresponds most nearly with these characteristics, A and B, and assign the teacher to that type (a judicious combination of types may prove satisfactory). A should have more influence than B in selecting the type.
3. The standard grade, which corresponds to any one of the teacher's assigned grades appearing in the top row of Table II, is given below it in the same column, opposite the teacher's type number.

Example: It is found that 92 per cent of the grades assigned by Miss M. are 70 or above, and 45 per cent are 90 or above. Referring to Table I, it is seen that Miss M. belongs in the neighborhood of Type 8. She is a low marker. The horizontal row opposite Type 8 in Table II now shows that Miss M.'s 50 is equivalent to a standard 54, her 55 to a standard 59, etc.

If a teacher is found whose characteristics are nowhere near being represented by any of the types, as may sometimes occur, it is evidence of some very erratic habit of grading, and more complete tabulation of the grades will be desirable. This is likely to reveal inconsistencies which can be explained only by an utter lack of system in grading or of appreciation of what grades mean; in any case that teacher will bear watching in this respect at least. Mr. Fishwild ran across two or three cases of this sort in his research. Such instances are, however, exceptional and need not interfere with the general application of the method.

The value of such information as this method furnishes need hardly be enlarged upon. An illustration is found in the problem of selecting the honor students from the members of a graduating class who have had their instruction under different groups of teachers; or again, in the investigation of complaints as to a

TABLE I  
TYPES OF TEACHERS

TYPE	A	B
	Percentage 70 or Above	Percentage 90 or Above
1.....	85	20
2.....	86	25
3.....	87	35
4.....	88	30
5.....	89	40
6.....	90	45
7.....	91	65
8.....	92	50
9.....	93	55
10.....	93	60
11.....	94	55
12.....	95	30
13.....	95	45
14.....	96	60
15.....	97	40
16.....	97	70
17.....	98	30
18.....	98	35
19.....	99	45
20.....	99	50

TABLE II  
FOR THE TRANSLATION OF GRADES TO STANDARD SCALE

Type of Teacher	Grade Assigned by Teacher of Given Type										
	50	55	60	65	70	75	80	85	90	95	100
1.....	55	65	70	74	78	83	87	92	97	100	100
2.....	55	65	70	74	77	82	86	91	96	99	100
3.....	60	65	68	73	77	82	85	90	94	98	100
4.....	52	58	66	72	76	81	86	91	95	98	100
5.....	60	65	68	72	75	80	84	89	93	97	100
6.....	59	64	67	72	75	80	83	88	92	97	100
7.....	55	60	65	70	74	77	80	83	87	94	99
8.....	54	59	64	68	73	77	82	86	91	96	100
9.....	54	59	62	67	71	76	81	85	90	95	100
10.....	60	63	66	68	72	76	80	84	89	94	99
11.....	50	55	60	65	70	75	80	85	90	95	100
12.....	50	50	58	63	68	75	82	88	95	100	100
13.....	50	55	58	63	68	74	79	85	93	98	100
14.....	50	54	58	62	67	73	79	84	89	94	100
15.....	50	55	56	59	64	72	80	87	93	98	100
16.....	50	55	57	59	64	69	73	79	85	92	99
17.....	50	53	55	58	61	70	78	87	95	100	100
18.....	50	53	55	58	61	71	79	86	94	99	100
19.....	50	53	56	57	58	64	73	82	92	98	100
20.....	50	51	53	54	55	63	76	84	91	97	100

teacher's grading or of the suspicion that a teacher is being too easy, etc.

It is further to be noted that the standards of grading in different schools may be compared in exactly the same manner as those of different teachers, the process being capable of considerably greater refinement because of the larger amount of data available. This might be made use of in the rating of high schools by college-entrance boards, so that, for example, a student coming from a certain high school with an average of 87 could be considered to have an average of 85 from a standard high school.

It is the purpose of the writer, as time permits, to gather data from a wider field and by their use to improve Tables I and II, so that they may attain the greatest possible accuracy and applicability. Statistics of this kind, and suggestions of educators relative to this subject, will be appreciated. Meanwhile it is hoped that the method as presented, with the accompanying tables, will be found useful.

## HIGH-SCHOOL FRATERNITIES

J. G. MASTERS  
Omaha Central High School

The following statistical study of high-school fraternity students' marks compared with the standing of non-fraternity students has been made to determine whether such fraternity students rank higher or lower in their work, whether the difference is measurably great, and whether the attitude of fraternity students is helped or hindered by membership in such societies.

The standings of 70 known fraternity students in the Oklahoma City High School are compared with those of the same number of non-fraternity students selected as a random sampling in each case from the Junior-Senior and Sophomore classes and the clubs (four debating clubs and the German Society in this case). Comparison is also shown with the grades made by the high school as a whole, and the number of students of the above-mentioned groups under discipline as shown in the principal's "Discipline Book" is analyzed.

The marks in use in the Oklahoma City High School are 1, 2, 3, and 4, the first being the highest and the last representing a failure. It should be noted that any average of grades that approaches a 1 is a high grade.

Collecting, assembling, and averaging the standings for the various groups, I obtained the figures in Table I.

An examination of Table I shows that the fraternity students earned far fewer 1's per student than either of the other two groups. With this in mind we should expect fraternity students to receive more 2's, but here they are about on an average with the other divisions. When it comes to the poor grades fraternity students have a much larger number in each case. All of this can be seen much more clearly in the representations of the comparative grades given in Graphs I-V.

Counting the different students in each group by years, as different students, and taking 194 in each case, we have the following comparisons:

194 club students made a total of 785 1's and 73 4's.  
 194 Junior-Seniors made a total of 746 1's and 136 4's.  
 194 fraternity students made a total of 369 1's and 333 4's.

TABLE I  
AVERAGE NUMBER OF DIFFERENT GRADES PER PUPIL

Group	Standing	First-Year Subjects	Second-Year Subjects	Third-Year Subjects	Fourth-Year Subjects
Fraternity .....	1's	3.31	1.53	1.21	1.09
	2's	3.01	2.30	1.48	2.68
	3's	2.83	2.40	1.75	0.91
	4's	2.71	1.68	1.75	0.89
	4's repeated	0.33	0.48	0.41	0.09
	3's after a 4	0.66	0.35	0.38	0.05
Junior-Senior .....	1's	5.84	3.94	2.54	2.26
	2's	3.60	2.54	1.85	2.40
	3's	2.49	1.54	1.23	0.95
	4's	0.99	0.70	0.64	0.35
	4's repeated	0.06	0.03	0.16	0.07
	3's after a 4	0.23	0.23	0.30	0.00
Club .....	1's	5.30	3.98	3.02	2.10
	2's	2.63	1.88	1.69	1.75
	3's	1.23	0.92	0.46	0.60
	4's	0.59	0.40	0.19	0.00
	4's repeated	0.05	0.00	0.00	0.07
	3's after a 4	0.03	0.10	0.07	0.00

Put in another way the results are even more decisive, as shown in Graph VI.

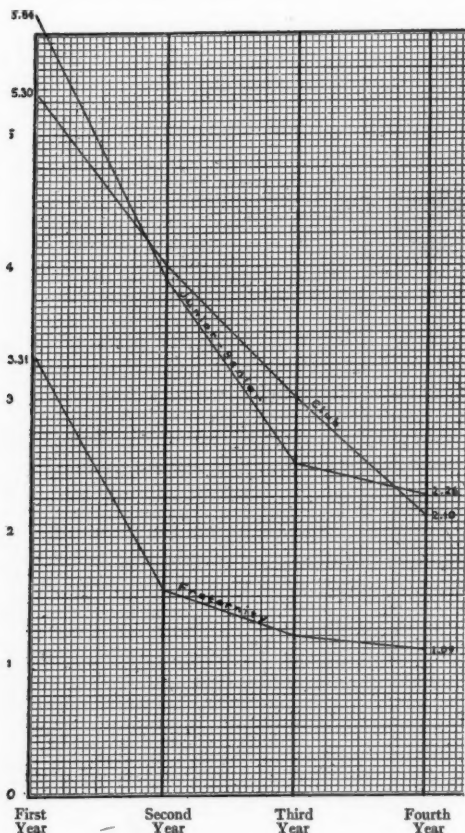
TABLE II  
AVERAGE OF GRADES

Group	First Year	Second Year	Third Year	Fourth Year	General Average
Fraternity .....	2.37	2.53	2.62	2.28	2.45
Sophomore .....	2.15	2.27	.....	.....	2.21
Junior-Senior .....	1.67	1.88	2.00	1.88	1.86
Club .....	1.70	1.69	1.59	1.65	1.66

Calculating the averages of each group by years and the final general average I obtained the figures given in Table II.



It should be noted that the lower the number the higher the standing, and that the club students are highest generally, with

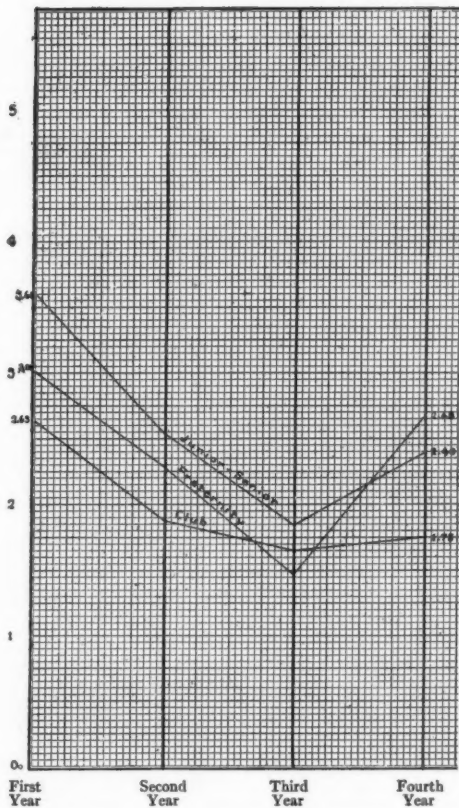


GRAPH I.—Average number of r's made by groups through four years

the Junior-Senior group second, and even the Sophomores higher than the fraternity students.

From an estimation of all the grades of the Oklahoma City High School for the year 1912-13 the general average grade was

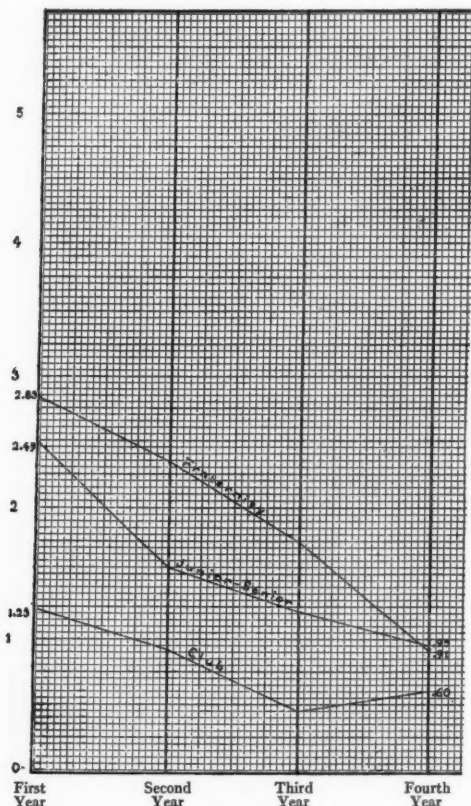
found to be 2.01. Comparing this average with the final averages of the above-mentioned groups, we obtain the results shown in Graph VII.



GRAPH II.—Average number of 2's made by groups through four years

It will be seen from the foregoing that in a final general average the Junior-Senior and club students average considerably higher than the school as a whole. On the other hand, the fraternity

students fall appreciably below the general standing of the school and far below the other groups.

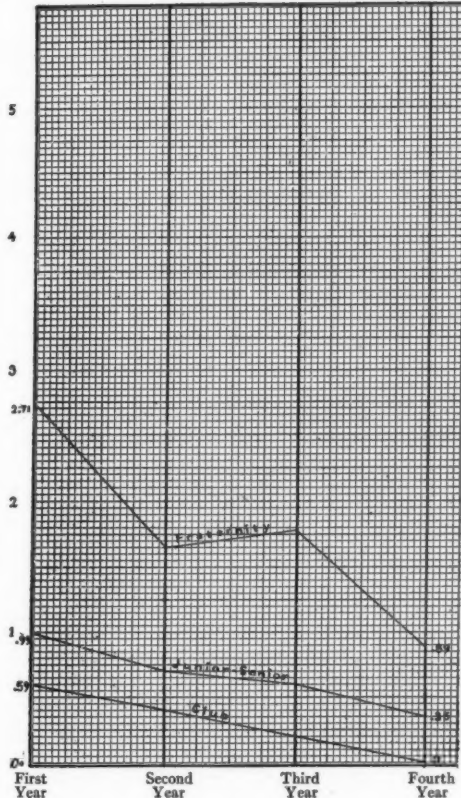


GRAPH III.—Average number of 3's made by groups through four years

Working out the medians, the highest 10 per cent, and the lowest 10 per cent, and finding the final averages of these by groups, I obtained the results shown in Table III.

The results shown in Table III are represented in another form in Graph VIII.

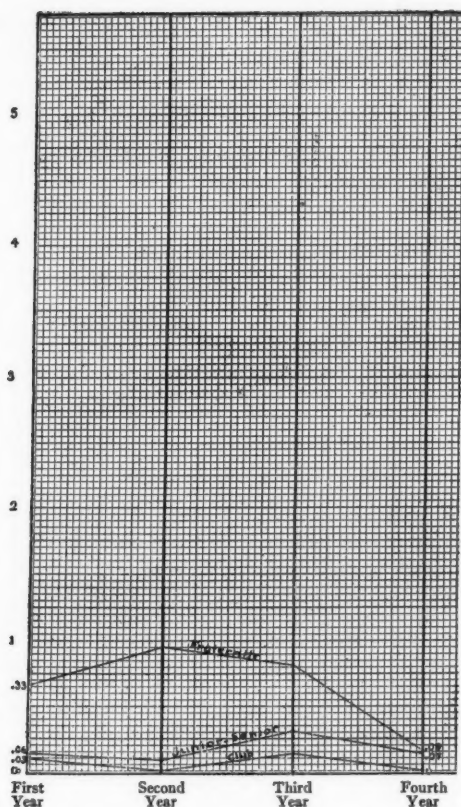
The medians, the highest 10 per cent, and the lowest 10 per cent, then, all reinforce what has been shown earlier by other com-



GRAPH IV.—Average number of 4's made by groups through four years

parisons, namely, that the fraternity students made poorer grades in every case, and taken from every angle their standing and scholarship are the lowest in the high school.

Turning now to the question of their attitude toward the high school as expressed in their behavior, I find that the "Discipline



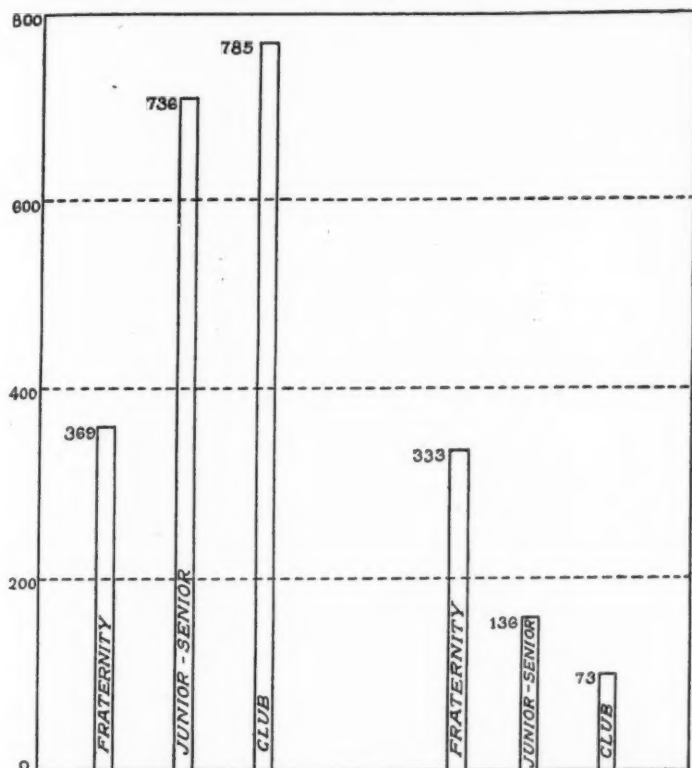
GRAPH V.—Average number of 4's repeated by groups through four years

TABLE III

FINAL AVERAGES OF MEDIANS, HIGHEST 10 PER CENT,  
AND LOWEST 10 PER CENT

Group	Final Average of Medians	Final Average Highest 10 Per Cent	Final Average Lowest 10 Per Cent
Fraternity.....	2.47	1.42	3.81
Junior-Senior.....	1.90	1.01	3.26
Club.....	1.64	1.00	3.22

Book" makes an excellent contribution. This alphabetically arranged book contains a record of all students under discipline for the year 1912-13. An analysis of its contents shows the breaches in discipline made by each group. The general record



GRAPH VI.—Showing number of 1's (left) and number of 4's (right) made by three groups of 194 students each.

for the high school gives a total of 774 boys. This number less 70, the known fraternity boys, gives 704 as the total of non-fraternity boys. The count from the "Discipline Book" gives the following data:

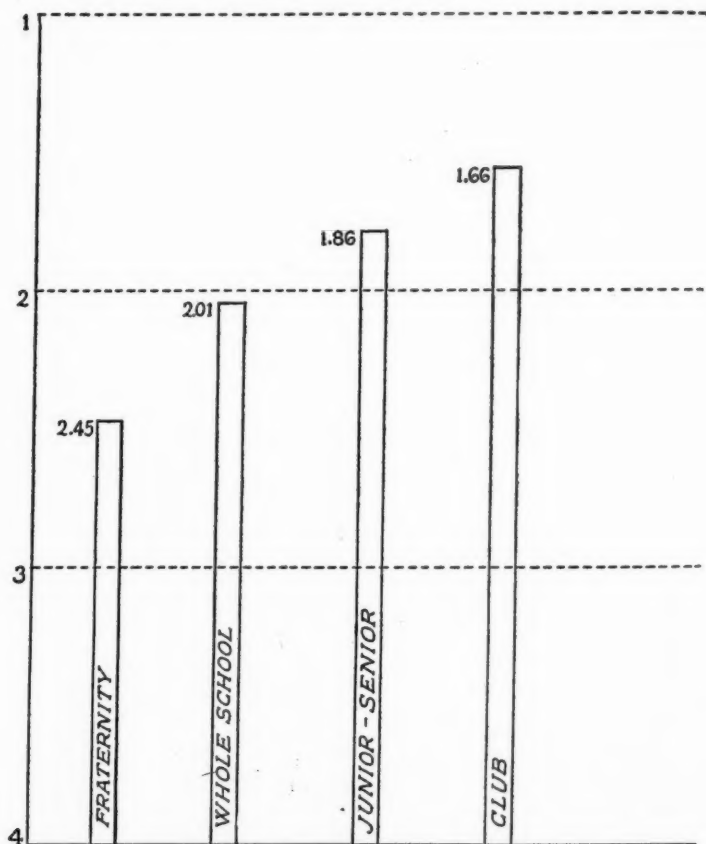
## CASES UNDER DISCIPLINE COMPARED

Cases under discipline of non-fraternity boys, 126.

Cases under discipline of fraternity boys, 38.

Average number of cases for non-fraternity boys, 0.18.

Average number of cases for fraternity boys, 0.54.



GRAPH VII.—General average attained by each group

## NUMBER OF BOYS UNDER DISCIPLINE COMPARED

100 non-fraternity boys committed 126 acts calling for discipline.

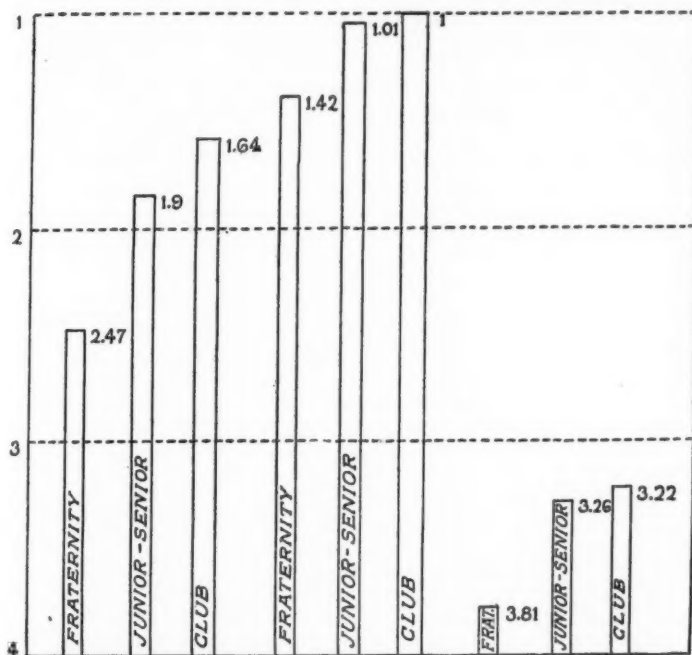
21 fraternity boys committed 126 acts calling for discipline.



Average each for non-fraternity boys, 1.26.

Average each for fraternity boys, 1.86.

The above presented in graphic form appears in Graph IX.



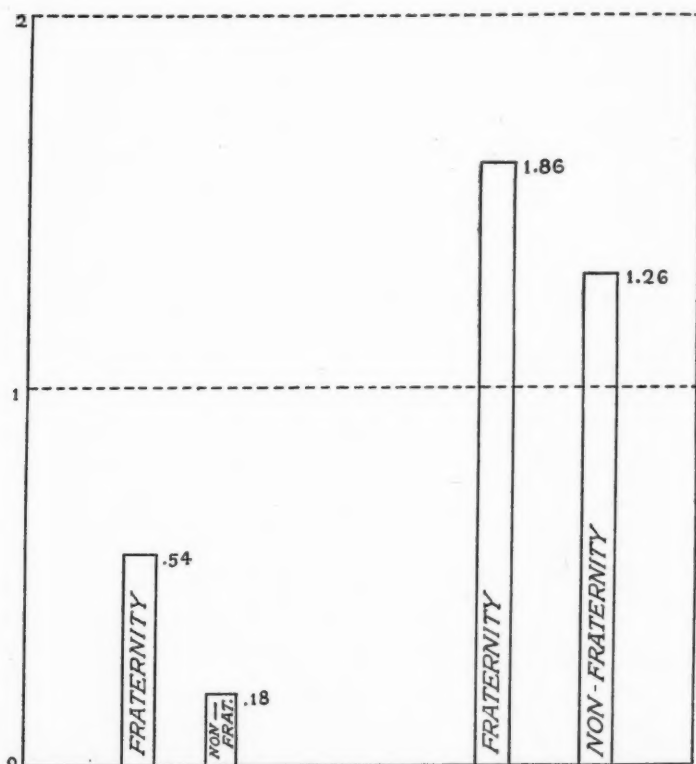
GRAPH VIII.—Averages of medians (left), highest 10 per cents (middle), and lowest 10 per cents (right).

#### CONCLUSIONS

The foregoing study shows conclusively:

1. That fraternities discourage scholarship and retard their members in their progress through the Oklahoma City High School.
2. The disparity in scholarship between fraternity and other groups in the same high school is so great as to be a cause of concern to parents and school authorities.
3. Literary and debating clubs encourage scholarship. They should be fostered and multiplied—always under the guidance of a faculty member.

4. Membership in fraternities increases the general problems of control and discipline. It is safe to say that the fraternities encourage wrong attitudes and a spirit of disregard for the established order.



GRAPH IX.—Averages of number of cases (left) and number of boys (right) under discipline.

5. The conclusions stated above give us a basis for asserting that such secret societies should be suppressed by the most active measures, and that the school should encourage all forms of literary, language, and debating clubs as far as possible.

## ADOLESCENT MORAL DELINQUENCY AND THE ATTAINMENT OF SOCIAL VALUES

F. M. GILES<sup>1</sup>

The purpose of this paper is to discuss the attainment by the individual of those social and moral values which give him his character and his attitude toward life as a whole. The facts indicate that in adolescence the individual goes through a rather definite process in forming his ethical standards, a process marked by a breaking up of the old, a trial and reorganization, and finally by the attainment of the standard of his group.

There are several lines of evidence which indicate that adolescent development has the general character mentioned above. Professor Marro in his work *La Puberte* reports the following: Observations were made in

Italy on the conduct of 3,012 secondary students, and the conduct of 70 per cent was reported "good" at eleven years of age, of 54 per cent at fourteen, and 74 per cent at eighteen. Plotting these figures, Professor Marro obtains a curve like that given herewith. Interpreting this curve, we note comparatively good conduct (Fig. 1) in the period immediately preceding

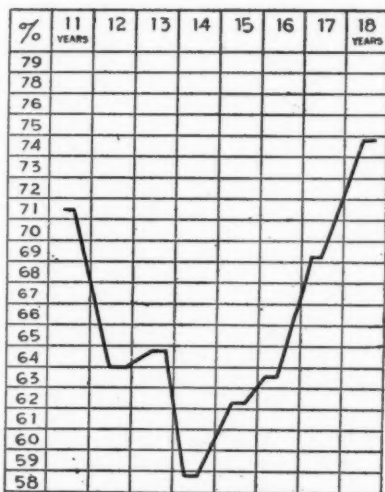


FIG. 1.—(After Marro)

<sup>1</sup> Mr. Giles, late principal of the DeKalb Township High School, died Sept. 4, 1916.

adolescence, the period of imposed morality; a decided falling off in the character of the conduct from that time until the age of fifteen years, the period of trial; and then the beginning of a rise which does not end until a higher point is reached at the age of eighteen years than was had at eleven, this point being the attainment of control.

In order to compare these figures with those of an American high school, the writer kept, for a period of four years, a record of the students requiring discipline. The aggregate number of boys observed was 687, of girls, 767. The figures given in Tables I and II were obtained. Plotting these figures we get the curves

TABLE I

## Boys

Age	Number Observed	Number Classed as Good or Not Requiring Discipline	Percentage of Those Classed as Good
13.....	52	47	90
14.....	140	114	81
15.....	163	137	84
16.....	121	85	70
17.....	79	58	73
18.....	45	38	84
19.....	18	15	83

TABLE II

## GIRLS

Age	Number Observed	Number Classed as Good or Not Requiring Discipline	Percentage of Those Classed as Good
13.....	67	64	95
14.....	179	170	94
15.....	212	196	92
16.....	170	159	93
17.....	99	85	85
18.....	24	22	91
19.....	7	7	100

of Figs. 2 and 3, which we note to be in general the same as Professor Marro's, although in most cases we should probably have to

allow about two years for the later development in this country as compared with Italy.

I think that from these statistics we may assume an analogous development for many individuals. We may outline this development as follows: fairly good conduct in the lull preceding adolescence because of undeveloped powers; then, at adolescence, a breaking away from restraint, and a trying out of the new-felt

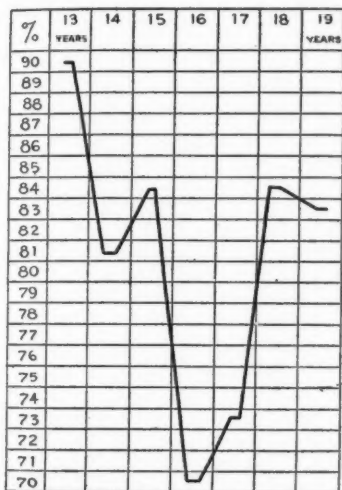


FIG. 2.—Curve based on observations in the DeKalb Township High School. Percentages are of those classed as "good."

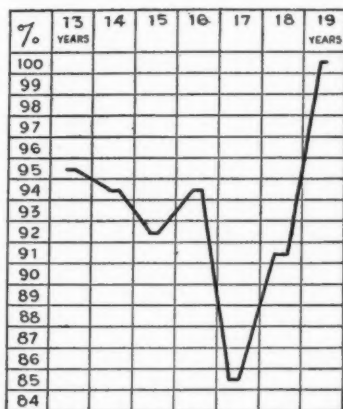


FIG. 3.—Curve showing observations on high-school girls for four years. At each age the number of girls was taken and the number not requiring discipline.

powers in many new directions and combinations. But as the consequences of the acts develop and their meaning becomes clear, the evil acts, one by one, are given up or reformed. Thus, as time goes on, a larger and larger part of the individual's life becomes moralized, and a larger and larger proportion of his acts are classed by observers as "good," until we find that at eighteen he has raised his moral standards approximately to those of the group of which he is a member. And the standard reached is not only

nearer that of the society about him than that which he had attained at twelve years of age, but is also more real, because it has been worked out through experience. It is no longer a formal, but a voluntary, acceptance of certain boundaries within which his life must go. The adolescent has passed out of the Garden of Eden through eating of the fruit of knowledge and has become one of us, knowing good and evil.

On the other hand, we find some individuals of the type who, because they live in a community of low ideals where evil acts are approved, or because even in a higher community they fail to respond to social pressure, form their lives on a low standard. These latter persist in evil actions that the group disapproves of, and try to avoid the consequences of them by deceit, concealment, or force. Such individuals take a standard for life below the community level. From the point of view of society they are the moral failures. In other words, the period of trial is also a period for making delinquents. If the result of the period of trial is immoral, we have the confirmed criminal formed. Yet it seems that in a normal environment, with a careful attention to discipline and guidance, practically all individuals are brought to the social standard.

This assumption of an analogous development for individuals, drawn from Professor Marro's statistics, is borne out by observations in several directions. In the lower years of high school there is a larger amount of spontaneous disorder, unprepared lessons, truancy, etc., than in the later years. Yet the disorder is of a temporary character and usually easily handled; and in most cases the individuals reported become manly, dependable students. That is, the "immorality" was but a temporary phase in their development. On the other hand, when boys in the later years are reported for similar delinquencies, it too frequently means that there is a settled attitude toward unsocial conduct, that is very difficult to eradicate. The individual has developed an unsocial view of life that makes him an evil influence in the school.

Juvenile delinquency furnishes further material which throws light on the growth of character. As is well known, delinquency, according to the statistics of the United States census, increases

threefold in the period from eleven to fifteen years of age, and then again decreases rapidly. The figures are 466 cases at ten years of age, 2,150 cases at fourteen, and 309 cases at nineteen. In *Man and Abnormal Man, Including a Study of Children* (Government Printing Office, 1905), Mr. MacDonald gives the proportion of criminals per 1,000,000 of the population as follows:

TABLE III

Under 12 years old	24
12 to 16 " "	261
16 to 21 " "	321
21 to 30 " "	245
30 to 40 " "	204
40 to 50 " "	143
50 to 60 " "	92
Over 60 " "	56

This places the largest proportion of criminals in the years 16 to 21. Further, the number of delinquents sent to reform and industrial schools is largest among boys and girls fourteen and fifteen years old and decreases from that age very rapidly.

The census of 1890 (p. 569, in a report on "Juvenile Crime") shows the following summary:

Truancy greatest at thirteen years of age—run away from authority.  
 Incurability greatest at fourteen years of age—rebel at authority.  
 Petit larceny greatest at fifteen years of age.  
 Larceny }  
 Burglary } greatest at sixteen years of age.  
 Intoxication }  
 Fornication greatest at seventeen years of age.

In the same census (p. 566) is found Table IV showing the distribution of ages in juvenile reformatories of the United States.

In the report of the International Congress on Hygiene, Sikorski gives the types of children difficult to handle, and in Table V shows the percentage of those requiring discipline at different ages.

Sikorski says that the greatest number of these difficult children are found between the ages of thirteen and sixteen. "After seventeen years almost all bad subjects correct themselves."



Pointing in the same direction as the facts given above are the reports of a number of parents that, in each case, their boy was "so good" until about eleven or twelve years old—stayed in eve-

TABLE IV

Age	Male	Female
7 years.....	63	27
8 ".....	143	59
9 ".....	260	78
10 ".....	466	116
11 ".....	265	127
12 ".....	1,182	189
13 ".....	1,478	290
14 ".....	1,769	381
15 ".....	1,751	466
16 ".....	1,626	543
17 ".....	921	480
18 ".....	420	234
19 ".....	213	96
20 ".....	103	57
21 ".....	25	15

nings, studied his lessons, ran errands, etc.—but now, when fourteen or fifteen, they can do so little with him; he is unruly, irresponsible, and shiftless. Yet these boys later worked out a manly moral standard for their lives.

Years of Age	TABLE V	Percentage
11½.....		2.5
12.....		6.1
13.....		23.7
14.....		20.0
15.....		21.0
16.....		6.2
17.....		1.2

As is well known, owners of shops in which careful and exact work is required are loath to employ boys between fourteen and sixteen years of age, because in this period they are careless and indifferent toward their work. This attitude in boys and the change later on would be explained by the theory of break-up given above. And this break-up comes sharply to the front when the conditions in the home or surroundings are lax.

*Title:  
Distribution  
of Ages in Ju-  
venile Refor-  
matories in U.S.  
Census of 1890*

The smaller number of girls going through this period of trying out needs some comment. The less trying out found among girls would indicate that they do less exploring morally than boys. They accept the standards of society more readily. This may be because society holds them more strictly to account for any deviation from social standards—even minor ones—and visits a heavier punishment upon them, so that long submission has produced less tendency to try out; or it may be that woman is less given to variation than man—morally as well as physically—is more given to upholding the accepted rights and traditions than man. Her morality is thus more conventional and less a matter of experience and trial. Thus we should expect to find it less secure in some ways than man's. And statistics seem to indicate this; for we find the percentage of women criminals per 1,000,000 of the population increases up to sixty years. And in Italy the period of the greatest number of females is ten years later than that of men.

So much for the trial period of adolescence. A most important fact for the changed attitude later in adolescence comes from the study of adolescent conversion. The statistics collected by Starbuck and Coe show the well-known fact that sixteen and four-tenths years is the age of the greatest number of conversions. Does this fact not reinforce the figures of Marro, and—allowing a year or thereabouts for the earlier maturity of Italian youth—does it not indicate a change in the life of adolescents in general about this time, and their readiness to remodel their lives on the basis of the society about them, thus, in a religious atmosphere, to take the religious viewpoint as a guide for life? This change marks a new attitude toward life. No longer is the adolescent an explorer charting unknown seas, or an Ishmaelite, his hand against established convention; he has accepted definite standards for his life and will give them a trying out before he breaks away again. And as the fixity of habit settles down upon him and responsibilities increase, the chances are less and less that he will break away.

An important inference from the point of view of discipline and government in the home and school is that an unsocial action has a very different meaning for the observer and therefore should be handled differently according as it occurs in the period previous

to sixteen years of age or subsequent to it. In the former case it nearly always is simply an isolated trying out of a course of action because it seems attractive; the act is not a part of a scheme of life, and there is not much thought of results. When the consequences are pointed out, and social pressure is brought to bear, there is usually a ready abandonment of the attitude. In the latter period of adolescence unsocial action too often means, not the spontaneous carelessness of earlier years, but either a failure of the individual to conform his life to fairly well-known standards—that is, weakness on his part—or a more or less settled unsocial attitude toward life taken in the belief that such an attitude is the

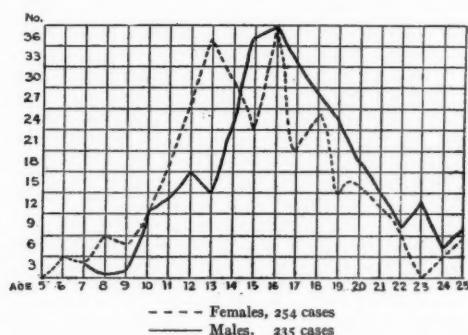


FIG. 4.—Curve showing age of conversion. (After Starbuck, *Psychology of Religion*.)

clever, pleasurable, or advantageous thing to do. There has been a fixing of the ideals along unsocial lines. Under such conditions one will have to work long and patiently either to establish a better control or to break up the unsocial attitude; for the individual will slip back under temptation or whenever he thinks he can escape detection.

There is, in this law of adolescent moral development, this further note of encouragement for those parents who are alarmed and apprehensive over the loss of moral tone in their boys and girls during the early period of adolescence, namely, that the attitude is a temporary one and will, with proper training and surroundings,

work off, and the individual will come to himself and to the standards of his group. At the same time the other aspect of the process is to be remembered, that the period is an exceedingly critical one for the individual, for he is working out the standards by which he is to guide his life for the years to come, and there is the possibility that he may, in the strife of truth and falsehood, choose the evil side. Thus every care and endeavor should be used to bring about the choice of the desired standards. For the choice once made is in all probability final.

The problem of the first period of adolescence is one of trial and discovery; the essential problem of the second period is one of control of the newly discovered self, and this problem often lasts until well on into mature life, and in some cases is not solved at all. After the adolescent has found out his talents, his likes, and his possibilities, his test, so far as manhood is concerned, has really just begun. The problem hitherto has been one of seeking new activities, enjoying them, and measuring himself in them. And the danger is that the individual will continue unstable and a seeker for pleasure; will, in other words, make pleasure the end of his planning. The real test now is, having measured himself somewhat and having some realization of an ideal to which he would aspire, can he bring himself under control and make real this ideal? To do this he must change from feeling to intellect as the guide of life. The statistics of social hygiene and dissipation show either the low ideals prevailing, or extreme lack of control among the young manhood of the nation. The youth should be taught that the test of himself, after having "felt the bite of full-bodied desire," is whether he can live up to an ideal of clean, hardy manhood, and that the test of our nation is whether we can make this ideal prevail. This is the problem of moral education in adolescence.

Schematically, then, the progress in the development of the individual during adolescence is as follows: There is a lull physically in the years immediately preceding adolescence, with fairly good conduct; but with the increase in strength and the impulsion of new-felt powers—mental and physical—the growth of sex, etc., there comes a general revolt against restraint. In this period so

much of the petty stealing, truancy, etc., occurs. And here is the critical period which lasts until moral values are established. Then there is a division into two groups: the class which solves the problem of control and organizes life on social lines, and another class the members of which for reasons of environment or heredity follow the path of desire, delinquency, and crime. We may say summarily that the problem of education in the adolescent period is to provide an environment wherein the individual can find sufficient freedom to try out his social impulses, and yet an environment so organized that he shall not take a distinctly unsocial or immoral combination of them. The aim of the parent should be to keep the suggestions of the home life and the associates of such a character that the solution is the one socially desired. The meaning to the individual of this period of trial and choice is to make the character which is finally worked out the result of real effort and personal choice. Only so could a character be developed. Finally the period has a racial meaning as well, in that it offers opportunity for the variation that makes changes in established custom possible.

#### BIBLIOGRAPHY

- Census of 1890, Statistics on "Juvenile Crime," p. 569.  
 Census of 1890, Statistics on "Juvenile Delinquents," p. 566.  
 Chamberlain, A.F., *The Child* (see chapter on "The Child and the Criminal").  
 Clouston, T. S., *The Neurosis of Development* ("The Adolescent from the Medical Side").  
 Coe, George A., "Morbid Conscience of Adolescence," *Transactions of the Society of Illinois for Child Study*, III, 2.  
 Dawson, *A Study of Youthful Degeneracy*, Pedagogical Seminary, 1896.  
 Duprat, G. L., *La Criminalité dans L'adolescence*.  
 Hall, G. S., *Adolescence*.  
 Key, *Pubertätsentwickelungen und Krankheitserscheinungen*.  
 Laurent, *La Criminalité infantile* ("Observations of a French School Officer").  
 MacDonald, Arthur, *Man and Abnormal Man—Including a Study of Children* (Government Printing Office, 1905), p. 452.  
 MacDonald, Arthur, "Juvenile Crime and Reformation," in report to Committee of House of Representatives, 1908.  
 Marro, Antoine, *La Puberté*.  
 Morrison, William D., *The Juvenile Offender*.

- Russell Sage Foundation publications, "Boyhood and Lawlessness," "The Neglected Girl."
- Sikorski, J., "Children Whose Education is Difficult," in report of International Congress on Hygiene, 1883.
- Smith, F. W., "The High School and the Adolescent," *Journal of Pedagogy*, 1904.
- Starbuck, *The Psychology of Conversion*.
- Stewart, A. H., *American Bad Boys in the Making*.
- Swift, "Criminal Tendencies of Boyhood," Pedagogical Seminary, 1901.
- Wille, *Die Psychosen des Pubertätsalter*.
- Wilson, Albert, M.D., *Education, Personality and Crime* (treats of crime from a physiological and multiple personality standpoint).

## EDUCATIONAL NEWS AND EDITORIAL COMMENT

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### A TRANSITION STAGE IN CHICAGO SCHOOL CONTROL

The public schools of Chicago are passing through a critical period of reorganization. For several years there has been a bitter controversy on between the Board of Education and the Teachers' Federation. In this controversy the enemies of affiliation of teachers' organizations with labor unions won a victory through a decision of the Supreme Court of Illinois holding that the Board of Education can legally make rules prohibiting membership of teachers in labor unions. The critics of the present organization won a victory in the form of a new law reducing the number of members on the Board and otherwise changing the system, especially through the statutory definition of the rights and duties of the superintendent and business manager.

The way is open for a new kind of organization. The Teachers' Federation has accepted the decision and has withdrawn from its affiliations with labor unions. This will be followed, it is promised, by a vigorous policy of professional activity. The better training of teachers, the more intelligent and professional study of the problems of modern school organization, the more precise definition of teaching efficiency, are problems to which the Federation will give much more attention than in the past.

There is to be a new Board, made up of strong, independent citizens who will set aside the old controversy and organize a school system which shall be second to none in perfection of organization and in breadth and quality of instruction.

The last paragraph is a prophecy, not a statement of actual achievement. Those who have been most interested in seeing Chicago schools advance have been in the habit in recent years of offering each other the melancholy advice that everybody must be patient because matters would have to get so bad that improvement would be demanded by everyone. These downcast friends of the schools did not hope for sudden reform. They did not, however, include in their calculations Mayor Thompson. With an obliquity of vision which has come to be recognized as characteristic, he nominated for the new Board a group



of people who brought at one stroke that condition which was so bad that everybody was aghast. Mr. Jacob Loeb, the president of the Board, in a dramatic statement recounted to the Board at a special meeting the efforts of the Mayor to take over the schools for complete domination by the City Hall. There was a protest from the whole city.

As the *Review* goes to press, the matter rests with the City Council, which has the power to reject the Mayor's nominations, and with the old Board, which, under the new law, holds over until the new eleven members are ratified. What the Council will do will not be known until after June 1. Let it be hoped that it will make the shortest work possible of the Mayor and his kind. The old Board is beginning to reorganize in the spirit of the prophetic paragraph above. The Board is taking its duties of appointing heads of the schools seriously and is seeking information and expert advice.

It looks as though the Mayor of Chicago had unwittingly done the schools a great service by attempting one of the few things which an American community is absolutely certain to refuse to tolerate. Chicago will not allow its schools to become the victim of a low, selfish system of spoliation.

The future of the Chicago schools looks brighter today than it has for a long time.

C.H.J.

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#### THE PORTLAND MEETING

The annual meeting of the National Education Association will be held in Portland, Oregon, July 7-14. The new Municipal Auditorium of the city assures the convention of an ideal meeting-place, and the unrivaled natural beauties of the state furnish unusual attractions. The two-million-dollar Columbia River Highway is one of the great scenic drives of the world. Concerning the program the secretary sends out this interesting announcement:

Ideas around which the program of the general session center are preparedness, nationalism, and patriotism. Speakers representing various phases of the educational work will show particular types of training tending to the development of these fundamental virtues. The Department of Secondary Education will present the following topics and speakers: "The Intermediate School or Junior High School," Superintendent A. C. Barker, Oakland, Cal.; "The Junior College or the Six-Four-Four Plan," Superintendent Frazier, Everett, Wash.; "The Evening High School, Its Needs and Possibilities," Assistant Superintendent W. M. Osbourn, Tacoma, Wash.; "Conservation of

the Teacher," Professor C. E. Rugh, University of California; "Conservation of the Pupil," Principal George C. Jensen, Elco, Nev.; "The Girl Problem in the High School," Elizabeth Rowell, adviser of girls, Broadway High School, Seattle, Wash.; "The Responsibility of the High School for American Ideals," President A. H. Reinhardt, Mills College, Oakland, Cal.

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#### THE DEPARTMENT OF REGISTRATION AND EDUCATION

Reorganization of the administrative work of the state of Illinois is to go into effect on July 1, 1917. It includes nine departments, one of which is the Department of Registration and Education. Dr. Francis W. Shepardson, recently associate professor of American history in the University of Chicago, has been appointed by Governor Lowden as director of this department. Under Mr. Shepardson's direction will be included the work of registration now covered by a number of separate boards of examiners, of medicine, of pharmacy, and the like. The educational feature of the new department's activities will cover the general supervision of five state normal schools, of the State Geological Survey, the State Museum of Natural History, and certain scientific investigations in botany and bacteriology and the like, now conducted by agents of the state.

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#### CHARACTER EDUCATION

The *School Review* is glad to publish the following item, believing that the National Institution for Moral Instruction has unbounded possibilities for good:

The National Institution for Moral Instruction, Headquarters Study, 3730 McKinley Street, District of Columbia, wishes to furnish a means of publicity and consultation for all professional educators who are doing advance work in character education. A collection of exhibit material is being made, containing books, circulars, lesson material, social-organization and character-training plans, articles and typewritten statements, which will be shown in "consultation rooms"—on character education at meetings of the National Education Association and at state associations. Anyone is privileged to show advance material in this exhibit, but nothing will be included merely for advertising. The National Institution for Moral Instruction is for research in this neglected field of education and wishes to assist and recognize with honors all who are making progress possible in character education. Those active in original work are invited to enrol as "Corresponding Associates."

MILTON FAIRCHILD

## THE SCHOOL NURSE

In many communities attention to the health of the school children means a hasty physical examination by a very busy physician of a thousand or more children just before the opening of school. The health certificate issued means little because it covers contagious diseases only. Some communities have gone a step farther and have employed a visiting nurse; but again conservatism stands in the way. The community, half-convinced, employs one nurse for 40,000 children. "The Report of the Present Status of School Health Work in the 100 Largest Cities of the United States," published in the March number of the *American Journal of School Hygiene*, indicates continued unawareness in cities in which need of medical supervision is evidently great. On the whole, the report shows increased concern for child welfare and scientific provision for preventive measures.

Perhaps the chief factor responsible for the introduction of the school nurse into the schoolroom has been the perennial inability of the inspectors to secure corrective action on the part of the home with reference to any defects discovered. Dr. Hayward, an English doctor, says:

As a doctor I felt quite stunned in the strange atmosphere of an elementary school, coming into contact, not so much with actual illness, as with the primary conditions which produce and foster it. Dirt, neglect, improper feeding, malnutrition, insufficient clothing, suppurating ears, defective sight, the impossibility of getting adequate information from the children; and nobody to whom one could give directions or who could help in examining the children. My entries began and ceased with endless notifications.

The records kept by large American cities show that the addition of the school nurse has increased by many hundred per cent the tendency on the part of the home to follow the advice of the examiners; for the office of the school nurse lies, not only in a careful oversight of general conditions of health of the school children, but more particularly in a kind of "follow-up work" which takes her into the homes of her district. During the year 1915 the Chicago staff of nurses was responsible for 13,214 minor operations for tonsils, adenoids, and the like, and was instrumental in securing treatment at dispensaries or by private physicians, dentists, opticians, or through charities, of 21,706 cases.

On November 1, 1916, Mr. Laurence A. Averill sent a questionnaire to the superintendents of 121 cities having a population upward of 50,000, inquiring the school enrolment, the presence of a school physician,

school nurses, and school clinics. Exactly 100 answers were received. The cities replying to the questionnaire were arranged in four groups, the first including the largest cities with the exception of New York, which was considered in the January issue of the *Journal of School Hygiene*. Boston and Chicago stand in the foreground, though they leave much to be desired. Boston shows a school population of 110,938 with 38 nurses, averaging 3,000 pupils per nurse; Chicago, 450,000 children with 150 nurses, making the same average of children per nurse. In the second group Kansas City (Missouri) distinguishes herself by recording a school population of 46,000 with no nurse. Minneapolis, on the other hand, shows a school population of 43,083 with 29 nurses, averaging 1,500 pupils per nurse—a provision quite adequate. Of the cities in the third group, Trenton makes the best provision, Worcester the least. The cities of the least population are likewise least alive to the need of medical supervision. The suggestions in the final paragraph of the report are significant for this class of city and for towns and rural communities:

As we have pointed out above, there are certain classes of defects among pupils which can only be successfully diagnosed by the physician, and thus the medical expert remains essential in the most successful administration of comprehensive school health. Still, in innumerable of our smaller cities, and in towns, the future health worker is likely to be the nurse almost exclusively. The number of serious organic defects found among the pupils of smaller cities and towns are naturally smaller, and can easily be referred to some local physician. Thus, in whichever direction we turn, the future sphere of the school nurse becomes more and more inclusive.

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#### THE BOOKLIST

At this time of the year superintendents are planning for next year's equipment. With the pressure more insistent from other directions, the library is likely to receive a scant allowance in spite of the fact that the inculcation of scholarly methods of study depends rather largely upon the supply of reference material. A good many who are hampered by small means regard the encyclopedia and the dictionary as the only available works of this type within their resources. These persons are apparently unaware of the long list of carefully prepared public documents to be had for very slight expenditure. To facilitate the distribution the *Booklist*, edited by the American Library Association, once in two months issues a selection of public documents particularly useful for the small library. The current issue, for instance, lists subjects ranging from the "Minnesota Survey," published by the United Labor

# SUBJECTS SELECTED BY STUDENTS IN THE HIGH SCHOOLS OF OREGON, 1916-17

For the purpose of determining somewhat the trend of education through the high schools of Oregon, this department sent a request to all its standard high schools for a schedule of subjects of each pupil in the high school. The information was received from 165 of the 175 high schools of the state. The information as tabulated is here given. Sixty-one high schools in the state are offering a course in domestic science and domestic art; 59 are offering a course in manual training; and 7 are offering a course in agriculture.

GRADES	STUDENTS			Subjects														
	Boys	Girls	Total	English	Mathematics	Science	History	Latin	German	Manual Training	Domestic Science and Art	Stenography	Agriculture	Teachers' Training	Elementary Training	Spanish	French	
Freshman.....	3,140	3,990	7,130	6,215	5,607	2,907	2,456	1,051	765	1,055	1,531	439	144	.....	.....	.....	180	43
Sophomore.....	2,379	2,955	5,334	4,967	4,641	2,176	2,321	1,159	992	743	1,087	678	68	6	.....	.....	231	61
Junior.....	1,266	2,419	3,625	3,388	2,198	1,899	1,866	657	732	400	593	808	104	142	4	.....	138	48
Senior.....	1,290	1,874	3,164	2,411	1,954	1,547	1,924	311	403	221	426	529	97	622	17	.....	101	21
Post Graduate and Special....	124	480	604	95	103	69	64	12	19	19	195	84	1	90	.....	.....	4	2
Total.....	8,139	11,718	19,857	17,076	13,603	8,661	8,631	3,190	2,881	2,438	3,802	2,538	414	860	64	.....	654	175

**I. A. CHURCHILL**

State Superintendent of Public Instruction

Statistics Bureau, to the "Small Vegetable Garden," issued by the Plant Industry Bureau.

The *Booklist* had its beginning in lists of current books issued by the Wisconsin Free Library Commission, at first for Wisconsin libraries and later for other state commissions. It is by no means an advertising scheme. The books included have been carefully chosen for the guidance of librarians, and the explanatory notes indicate clearly the nature and scope of each work. Copies of the *Booklist* are to be found in most public libraries. The public-document section offers a carefully annotated list most likely to be useful to the limited library. Almost all of the public documents are to be had free of charge if obtained through one's congressman.

#### SALARIES OF HIGH-SCHOOL TEACHERS

The *School Review* is indebted to Mr. J. M. McConnel, of Northwestern High School, Detroit, for permission to print a portion of the data collected by him for the Indianapolis High-School Teachers' Association. He canvassed the 100 cities having a population of over 50,000, to ascertain the annual average salary of high-school teachers, not including principals, for the year 1916-17. Seventy-five cities replied. Mr. McConnel's tabulation and comments on the results are as follows:

1. New York.....	\$2,187	10. Cincinnati.....	\$1,550
2. Newark.....	1,798	11. Oakland.....	1,543
3. Jersey City.....	1,794	12. Savannah.....	1,523
4. Philadelphia.....	1,696	13. Columbus, O.....	1,522
5. Pittsburgh.....	1,692	14. Seattle.....	1,501
6. Washington.....	1,650	15. Cleveland.....	1,501
7. St. Louis.....	1,620	16. Minneapolis.....	1,479
8. Yonkers.....	1,556	17. Denver.....	1,462
9. Youngstown.....	1,553	18. Fort Wayne.....	1,437
19. Milwaukee.....	\$1,437		
20. St. Paul.....	\$1,425	29. Rochester.....	\$1,298
21. Spokane.....	1,408	30. New Bedford.....	1,291
22. Toledo.....	1,399	31. Cambridge.....	1,286
23. Detroit.....	1,389	32. Patterson.....	1,278
24. Baltimore.....	1,382	33. Providence.....	1,266
25. Portland, Ore.....	1,339	34. Kansas City, Mo.....	1,265
26. Grand Rapids.....	1,337	35. Tacoma.....	1,263
27. Buffalo.....	1,333	36. Scranton.....	1,261
28. New Haven.....	1,328	37. Worcester.....	1,261
38. Salt Lake City.....	\$1,250		

39. Lynn.....	\$1,240	48. South Bend.....	\$1,190
40. Holyoke.....	1,237	49. Omaha.....	1,175
41. Syracuse.....	1,233	50. Fall River.....	1,168
42. Louisville.....	1,230	51. Duluth.....	1,167
43. Springfield, Mass.....	1,215	52. Bridgeport.....	1,166
44. Reading.....	1,206	53. Kansas City, Kans.....	1,162
45. Harrisburg.....	1,200	54. Indianapolis.....	1,144
46. Waterbury.....	1,200	55. Elizabeth.....	1,143
47. Hartford.....	1,198	56. Atlanta.....	1,142
57. St. Joseph, Mo.....	\$1,134		
58. New Orleans.....	\$1,125	67. Wilkes Barre.....	\$1,032
59. Des Moines.....	1,123	68. Houston.....	1,022
60. Troy.....	1,112	69. Portland, Me.....	1,019
61. Camden.....	1,111	70. Albany.....	1,009
62. San Antonio.....	1,067	71. Fort Worth.....	993
63. Schenectady.....	1,060	72. Oklahoma City.....	969
64. Somerville.....	1,054	73. Richmond, Va.....	817
65. Johnstown.....	1,046	74. Birmingham.....	781
66. Wilmington.....	1,038	75. Memphis.....	736

Here are given the average annual salaries for 1916-17 as reported from these 75 cities. They are placed in descending order, and the quartile arrangement is used. The range is from \$2,187 in New York City down to \$736 in Memphis. The median salary is \$1,250, Salt Lake City. In looking at the table we see that 25 per cent of the cities pay an average salary of \$1,437 or more, and that 25 per cent pay \$1,134 or less; 50 per cent of the cities pay salaries that fall between these two limits, giving a range of practically \$300.

In general, there is a fair correlation between size of city and salary paid. Looking at the cities in the first quartile, we see that most of them would be in the first quartile of a table arranged on the basis of population. This correlation, however, is violently broken in numerous cases. For example, Yonkers and Youngstown are found in the upper quartile of salaries and are relatively small cities. Likewise, Indianapolis and New Orleans are in the third and fourth quartiles of salaries, while in population they are in the first quartile.

Some facts as to salaries paid in various sections of the country are shown by a study of the table. Of the 10 cities paying the highest salaries, all but one, St. Louis, are east of the Mississippi River. On the other hand, some of the smaller eastern cities pay extremely low salaries—for instance, Schenectady, Somerville, and Wilmington. The western cities are not found on either extreme, but are fairly well scattered through the upper 50 per cent. Of the 10 cities paying the lowest



salaries, 6 are southern cities. In only 1 southern city, Savannah, is the average salary above the median.

Not only is it important to know the salary paid, but it is also important to know the tendency of that salary to increase or decrease and also the rate. The attempt was made to get data from all the cities on salaries paid in 1906-7 and 1911-12. But for various reasons not all the cities could furnish the figures for these earlier years. Figures for 1906-7 were sent in by 52 cities, and for the year 1911-12 by 59 cities. From these actual average annual salaries are figured the rates of increase.

- A. For the past ten years; percentage is based on 1906-7 salaries in 52 cities.
  - 23 cities showed an increase of 25 per cent or more.
  - 18 cities showed an increase of from 10 per cent to 25 per cent.
  - 7 cities showed an increase of from 0+ per cent to 10 per cent.
  - 4 cities showed a decrease.
- B. For the past five years; percentage is based on 1911-12 salaries in 59 cities.
  - 2 cities showed an increase of 25 per cent or more.
  - 22 cities showed an increase of from 10 per cent to 25 per cent.
  - 24 cities showed an increase of from 0+ per cent to 10 per cent.
  - 11 cities showed a decrease.

This table shows that most of the increase in average salary during the past ten years came during the first five years. From 1906 to 1911 there was a fair increase in most of the cities. But in the period 1911-16 there were 35 out of 59—61 per cent—that showed an increase of less than 10 per cent. There were 11 cities—19 per cent—that showed an actual decrease. Just why the average salary has decreased during the past five years in several cities and only very slightly increased in numerous others while the cost of living has gone steadily upward is more than can be explained here.



## CURRENT EDUCATIONAL WRITINGS

### I. REVIEW OF CURRENT LITERATURE ON GENERAL SCIENCE

The current literature on general science may for the purpose of review be divided into three groups: (a) articles and reports of committees dealing specifically with phases of general-science organization and instruction, (b) text-books and laboratory manuals, and (c) articles pertaining to secondary organization as far as this concerns science organization. Since this is the first of the series of annual reviews to appear in this periodical, there shall be no attempt to limit the review to only that literature which has appeared during the past year. Many excellent articles have appeared previous to 1916, and a complete list, including articles of a more general nature, but related to the general-science problem, will be sent upon request to the writer.

The titles of articles which give direct attention to general science are too numerous to include here. Mr. W. L. Eikenberry has prepared an extensive bibliography of the literature, March, 1917, *General Science Quarterly*. This list will be continued in an early number of the *Quarterly*.

The majority of these articles are found in late volumes of the following periodicals: *School and Society*, *School Science and Mathematics*, *School Review*, and *General Science Quarterly*. The general-science movement has brought out so much discussion, especially in the East, that the *General Science Quarterly* was established as a clearing-house for opinions on the subject. The first number was published in November, 1916. Mr. W. G. Whitman, Salem, Massachusetts, is the editor. The editor is finding no difficulty in getting copy and subscriptions for the journal. *School Science and Mathematics* has recently organized a general-science department with Mr. Fred D. Barber, of Normal, Illinois, as editor. *School Review* and *School and Society* have published several general-science articles which, as a rule, deal with the more general question of the place of general science in the curriculum. A few articles are found in *School World* and inform one that England, too, has been confronted with the reorganization of secondary science and the place of a general course as an introduction to the special sciences.

#### ARTICLES DEALING SPECIFICALLY WITH GENERAL SCIENCE

The content of these articles may be grouped under several topics. Comment of a general nature will be made upon these, followed by a list of the articles which bear particularly on the topic given.

1. *Arguments for and against general science.*—Fortunately or unfortunately for the reader a large number of the articles are enthusiastic reports of the success of a general-science course. This is in part explained when one notes that the majority are reports of teachers in the field. As far as the writer recalls, but a single teacher among those who have taught first-year science reports a lack of enthusiasm over the results. While the teachers are generally satisfied with general science, no measurement of the results or values of the course are available other than a few statistical investigations of the interest shown by pupils taking the work and of the elections in the subject in various schools.

The arguments for general science most commonly given in these articles are:

- a) First-year pupils are too immature for special science courses.
- b) Pupils are interested in the course since the subject-matter is drawn from the everyday experiences of the pupils.
- c) Units of practical interest to the pupil are more desirable than theoretical or logical units of organization of a mature scientist.
- d) With the greater interest of the pupil comes better scientific study, increase of elections, and a higher grade of work in later special sciences.
- e) Organization is not dominated by college-entrance requirements.
- f) The course is easily adapted to local conditions.

Many of the earlier articles previous to 1916 give similar arguments. The references below cover most of these arguments.

Hanna, *School Science and Mathematics*, 1916, p. 210.

Ruch, *School Science and Mathematics*, 1916, p. 49.

Barber, *School Review*, 1916, p. 426.

Hessler, *School Science and Mathematics*, 1916, p. 407.

Caldwell, *School Review*, 1915, p. 134.

Elhuff, *General Science Quarterly*, 1916, p. 17.

The arguments against general science come chiefly from college and university professors and from high-school teachers of special sciences. Those commonly given are:

- a) The course lacks unity; it is a hodge-podge, or worse than that.
- b) Good teachers of such a general course are not available.
- c) Time spent in reorganization would be better spent in improving teaching of special sciences.
- d) General science is a waste of time, since it gives little of fundamental principles of the sciences, no logical development of subject-matter, and little, if any, training in scientific method.
- e) Pupils are interested in the special sciences if they are properly taught.
- f) General science must crowd out other secondary courses.

Coulter, *School Review*, 1915, p. 1.

Millikan, *School Science and Mathematics*, 1916, p. 193.

One fact is evident from the reading of the articles: general-science courses are being introduced throughout the country. One is forced to believe, if the experiences of the teachers and administrators in the field is a fair criterion, that general science in some form of organization, given in the first year of the present high school or in the first or second year of the junior high school, has come to stay. Further viewpoints on the value of general science will be found in:

Lewis, *School Review*, 1916, p. 426.

Eikenberry, *School Review*, 1915, p. 181.

Rowell, *School Science and Mathematics*, 1911, p. 116.

McAuley, *School Science and Mathematics*, 1911, p. 14.

Taylor, *School Review*, 1916, p. 20.

2. *Aims of general science.*—Among the many aims of a general-science course one commonly finds: (a) acquisition of the simple principles of the various sciences; (b) usable information about daily experiences; (c) development of powers of observation and conservative conclusions; (d) training in problem-solving; (e) preparation for later sciences and a bird's-eye view of the field to aid the student in his choice of further science study; (f) deepening and broadening of pupils' interests; (g) prevocational guidance; (h) preparation for the life in which the pupil finds himself.

A proper balance of these aims gives the basis for selection of subject-matter. Yet few writers agree on the relative importance of each. This is well demonstrated by the various texts that have appeared. One finds difficulty in predicting what the content of the course will be from the statement of aims in the preface.

Carpenter, *General Science Quarterly*, 1916, p. 46.

"Massachusetts Committee Bulletin," *General Science Quarterly*, 1916, p. 37.

Elhuff, *General Science Quarterly*, 1916, p. 17.

Johnson, *General Science Quarterly*, 1917, p. 83.

Barber, *School Review*, 1916, p. 724.

Caldwell, *School Science and Mathematics*, 1916, p. 393; also *General Science Quarterly*, 1917, p. 1.

Eliot, *Occasional Paper No. 1*, General Education Board.

3. *Organization and content.*—Two important questions are raised by the articles: (a) What shall be the length of the course? (b) What principles shall govern the organization?

The Biology Subcommittee of the Committee on Reorganization of Secondary Education, appointed in 1913, reports that unity of subject-matter is of most importance; that two years of work in elementary science be required unless administrative difficulties prohibit it; that the content be grouped and presented in the following units: physical environment, plants, animals, and man; and that human welfare is the motive that should underlie all elementary science instruction. At the 1916 meeting of the National Education Association the same scheme was reported by the committee. Serious objections by

various speakers to the "vertical stratification" into special sciences followed the report.

Barber presents a somewhat different scheme showing how general science should be related to the home, street, and school, and then be expanded in the second year to plant and animal life about school, personal hygiene, and community sanitation.

Preliminary Report, Biology Subcommittee, *School Science and Mathematics*, 1915, p. 44.

Report by Biology Subcommittee, *Proceedings of the National Education Association*, 1916.

Barber, *School Review*, 1916, p. 724; also *General Science Quarterly*, 1917.

Coulter, J. G., *School and Society*, 1915, p. 226.

Whitney, University of Illinois High-School Conference, 1916.

In different schools practically every special science has been made the core of the first-year work. Thus we find biology and geography given as the organizing subject or general-science courses as a basis for geography, agriculture, and other special sciences. Some writers believe that physics and chemistry are fundamental to all science study. Others argue for topical units of organization without regard to the place given the content by the special sciences.

Hanna, *School Science and Mathematics*, 1916, p. 210.

Robinson, *School Science and Mathematics*, 1915, p. 717.

Hessler, *School Science and Mathematics*, 1916, p. 407.

Caldwell, *School Review*, 1916, p. 134.

Various courses not found in the textbooks given later have been organized.

Austin, *School Science and Mathematics*, 1911, p. 217.

Welch, *National Education Association Proceedings*, 1915, p. 1022.

Carpenter, *General Science Quarterly*, 1916, p. 46 (the organization and aims of the general-science course in the Rochester (N.Y.) Junior High School).

Johnson, *General Science Quarterly*, 1916 (general science for eighth grade).

4. *Method*.—There is found in the literature much discussion of the method of teaching first-year science. The project plan; the emphasis of laboratory, demonstration, and textbook; the use of supplementary reading material; field work, are topics for argument. Several good references are listed.

Dewey, *General Science Quarterly*, 1916, p. 3; also *National Education Association Proceedings*, 1916.

Von Hofe, *School Science and Mathematics*, 1915, p. 751.

Webb, *School Science and Mathematics*, 1915, p. 679.

Hessler, *School Science and Mathematics*, 1916, p. 518.

Kilpatrick, *General Science Quarterly*, 1917, p. 67.

5. *Sequence*.—Several studies showing the position of general science and the basis for sequence which it affords are worthy of consideration. Among these are studies by Downing, Taylor, Barber, Lewis. With general science in the first year, biology comes most often in the second, physics in the third,

and chemistry in the fourth. Whitney has, it seems to the writer, summed up the reasons for our present sequence, if there are any, and has also stated well the factors which should govern the sequence. Since his statements do summarize the views, they may be given briefly. The factors determining the present sequence are (a) expediency, (b) size of classes, (c) cost of apparatus, (d) college-entrance requirements. The factors which should determine the organization and sequence are (a) needs and interests of the pupils, (b) development of the pupil and character of the locality, (c) early courses should prepare the pupil in the principles of the sciences, (d) applied science should follow preparatory courses, (e) half-year courses should be omitted.

Whitney, University of Illinois High-School Conference Proceedings.

Snedden, *School and Society*, 1915, p. 436.

Flexner, *Occasional Paper 3, General Education Board*.

Hanna, *School Science and Mathematics*, 1916, p. 210.

Coulter, J. G., *School Science and Mathematics*, 1916, p. 303.

Barber, *School Review*, 1916, p. 724.

Downing, *School Review*, 1915, p. 272.

Taylor, *School Review*, 1916, p. 20.

Lewis, *School Review*, 1916, p. 426.

#### TEXTBOOKS AND LABORATORY MANUALS<sup>1</sup>

Probably the textbooks and laboratory manuals which have appeared to date are the best evidence of the present status of general science as regards the ideas of organization, method, and aims of the course. Here, again, widely differentiated views are exposed.

There have appeared to date ten textbooks. One laboratory course not accompanied by a text is included in the list below. Each of the other texts except one is accompanied by a manual of laboratory directions.

Clark, *General Science*. American Book Co., 1910.

Rowell, *Introduction to General Science*. Macmillan, 1911.

Caldwell and Eikenberry, *Elements of General Science*. Ginn, 1914.

Snyder, *First Year Science*. Allyn & Bacon, 1914.

Hessler, *The First Year of Science*. Sanborn, 1914.

Clark, *An Introduction to Science*.

Pease, *A First Year Course in General Science*. Bobbs-Merrill, 1915.

Elhuff, *General Science*, Heath, 1916.

Weckel and Thalman, *A Year in Science*. Row, Peterson, 1916.

Brownell, *Laboratory Lessons in General Science*. Macmillan, 1916.

Barber, *First Course in General Science*. Holt, 1916.

*General Science* by Miss Clark represents a course not intended to prepare for college-entrance examinations, but a course which will prepare the reader

<sup>1</sup> The paragraph following the title of each textbook gives in essence the purpose of the course as expressed in the preface of the book.

to meet life's important problems and to pass muster on the principles and theories underlying scientific and economic management in the shop or in the home. The *Laboratory Manual in General Science* gives directions for experiments designed to make the pupil familiar with the facts and theories discussed in the textbook.

*Introduction to General Science* by Rowell is written to interest the pupil in immediate needs and his close surroundings and to lead him to arouse himself to the habit of seeking for a cause and of looking beyond the present and immediate to the future and ultimate. It further aims to give the pupil a bird's-eye view of all sciences, the power to see the interrelation of all sciences, and to reason from many points of view. Another value lies in awakening the mind to the possibilities of scientific knowledge and mental attainments and stimulating the ambition to learn more about at least one science. The course is elastic and local conditions can be emphasized.

*Elements of General Science* by Caldwell and Eikenberry proposes to give a usable fund of knowledge about common things, a more scientific attitude in interpreting problems, to make more effective and profitable the later work in the differentiated sciences. No attempt is made to maintain the unity of any one of the different sciences from which material is taken. Rather unity is secured by means of the logical connections between topics. The topics are of general significance.

*First Year Science* by Snyder deals with the earth and the sun in their relations to man. This treatment gives three advantages: (a) unity, (b) practical interest, (c) preparation for college-entrance examinations (in physiography). The language is simple, and the principles are thoroughly illustrated by experiment. All secondary sciences are treated so that the pupil may find his particular interest. The book is complete; no reference or manual is needed.

*The First Year of Science* by Hessler is written to meet the need of general-science instruction. The most important part of the course is the acquisition of the introductory notions of physical and chemical phenomena, but it includes also the problems of modern conveniences, the soil, plants and animals, and sanitation. The text is an answer to the question: Can general science be given in large first-year classes with varied needs, without specially prepared teachers and without expensive equipment?

*An Introduction to Science* by Miss Clark aims to start pupils on projects which will influence for good their present and future lives.

*A First Year Course in General Science* by Miss Pease offers an introduction to special secondary sciences. For those who do not finish high school it gives a comprehensive view of science. The world in which the student is a part furnishes the material for the course. This begins with the earth, the forces acting upon the earth, and the composition of matter. Physiographical material follows, and then life on the earth completes the view. The laboratory exercises are designed (a) to fix the principles and facts, (b) to teach by experiment one or more applications of the principle, (c) to accustom pupils to follow directions

and record accurately observations, (d) to teach pupils to draw reasonable conclusions.

*General Science* by Elhuff is intended to offer a scientific explanation for the many experiences of pupils and to create a desire for further knowledge. It meets the demand for both full-year and half-year courses, and presents the fundamental principles of science and of scientific study in such a way that pupils will acquire the desire to study the special sciences. For half-year courses the first twenty-four chapters are to be followed. The basic ideas in the course are matter, its properties and reaction of matter upon matter, and energy.

*A Year in Science* by Weckel and Thalman is an effort to present subject-matter of interest to the pupil, adapted to his stage of mental development, and of educative value. It provides a groundwork for the special sciences and has stood the test of time. Fifteen years of experimentation have established the course. Information for appreciation of environment and scientific thinking train the pupil to become a better citizen of the community.

*Laboratory Lessons in General Science* by Brownell brings together from scattered sources that which would appeal to beginners and which would find unity in their experiences and interests. The emphasis in these lessons is placed upon the personal and community aspects of the pupil's interests. This makes necessary and desirable topics of social science. Differentiation of the various sciences is not found in the lessons.

*First Course in General Science* by Barber is not written primarily to survey the whole field of science and present scattered bits from every special science. Nor is the course primarily intended for preparation to later science study. The primary function of the course is to give a rational, orderly, scientific understanding of the pupil's environment. The train of thought in the organization is guided by two parallel rails, the one physical—energy—and the other, sociological, *human welfare*.

These textbooks are discussed as to choice of material and organization in several articles and book reviews. Lewis, *School Review*, 1916, p. 426, shows the distribution of material in several texts. Webb, *School Science and Mathematics*, June, 1917, gives a statistical study of the ten texts. The current number, May, 1917, of the *General Science Quarterly* contains a review of each of the texts.

#### ARTICLES AND PAPERS RELATED TO THE GENERAL-SCIENCE SITUATION

In the 1915 and 1916 reports of the Commissioner of Education one reads that the junior high-school movement is making rapid progress. This movement concerns the science reorganization. The student of the general-science problem will be interested in the literature listed below.

Judd, "The Junior High School," *School Review*, 1916, p. 249.

Weet, "A Junior High School," *School Review*, 1916, p. 142.

The Detroit Junior High-School Course of Study.



Carpenter, "General Science in the Junior High School (Rochester)," *General Science Quarterly*, 1916.

Several other articles or papers with which the reader interested in general science and its future should be familiar are:

Flexner, "The Modern School," *Occasional Paper No. 3, General Education Board*.

Eliot, "Changing Aspects in Secondary Education," *Occasional Paper, No. 1, General Education Board*.

Snedden, "New Problems in Secondary Education," *School Review*, 1916, p. 177.

Snedden, "Principles of Aim, Organization," *School and Society*, 1915, p. 346.

Orr, *Massachusetts Board of Education Report*, 1914-15.

Briggs, "General Science in Secondary Schools," *Teachers College Record*, 1916, p. 19.

## II. BOOKNOTES AND REVIEWS

WILKINSON, W. A. *Rural School Management*. Boston: Silver, Burdett & Co., 1917.

This is the first volume of the "Teacher Training Series," being put forth under the editorship of Dean Charters, of the Faculty of Education, University of Missouri. The editor points out that the majority of texts for teachers stress principles rather than methods and assume that the young teacher will commence work in the city graded school. The new series is planned to meet the need of the teacher already in service and of the inexperienced teacher, more particularly in the one- and two-room school of rural districts and smaller villages.

With respect to subject-matter, this book is not composed of the same old materials simply rearranged, repolished, and retitled. Since human nature is in the main largely identical in town and country, and fundamental knowledge cannot be changed in any large way, the subject-matter treated is, in part, necessarily similar to that found in many of the older professional books. Fundamental knowledge, however, has become a hydra-headed creature. Instruction in every item is neither possible nor necessary, for time is pressing, and that which is fundamental in one locality is foreign to the needs of another. The teacher, even though inexperienced, must choose. How frequently in the past this choice has been thoughtless or, at best, has been under the guidance in the main of tradition! Here is made a noteworthy contribution toward assisting all rural-school teachers to recognize two large facts and to conduct their activities, whether within or without the school premises, in accordance with these facts. There is never lost the point of view that the boys and girls of the schools in question are country boys and girls, and that they have bodies and minds and habits, for the efficient development of which the school as an institution and the teacher as its presiding officer have been made responsible. The other underlying current treats of the power which the school may and should exercise in improving the social and economic status of the community.



Chapters showing how the interest of the patrons of the school may be aroused and maintained, how the school may be made a social center, and how it may become a community-health agency will be especially helpful to busy rural teachers and will exemplify the aim of directing improvement along social and economic lines. With respect to the management of the more direct internal activities of the country school, the book is exceedingly suggestive. The text abounds with rational material in concrete form. The experience which the child brings with him from his home environment is made the basis for developing and enlarging his inherent powers. The spirit of the country growth and creativity has been permitted to penetrate and permeate the school building. Hence the rural teacher may forget the formal stuff of his own pupil days and the academic niceties of his later student hours, and, actuated by the methods and concrete applications which the author supplies in profusion under the headings, among others, of how to govern, how to develop habits of study, how to make a flexible daily program, how to keep records and make reports, how to beautify, equip, and use the school premises, how to organize and conduct boys' and girls' clubs, school will not be a series of detached inco-ordinated incidents isolated from the remainder of the child's life, but a strong and necessary link of the chain of an ever-widening self-directing existence.

The volume itself on the mechanical side is a good example of the book-maker's art. The author, as student, has been impressed with the value of good paper, clear type, the emphasis of an occasional italicized phrase, and sectional headings in "black face" or "small caps." Each chapter closes with a summary, class exercises, and brief clearly indicated references for supplementary reading. There is appended a concise bibliography pertinent to the principal topics which are discussed.

W. L. RICHARDSON

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PEARSON, F. B. *The Vitalized School*. New York: Macmillan, 1917.

\$1.25.

In this book an attempt is made to "interpret some of the school processes in terms of life processes, and to suggest ways in which these processes may be made identical." The thought running throughout its pages is that "the school process is an integral part of the life process and not something detached from life." In his application of this principle the author has produced an inspirational rather than an informational book. There is much said about patriotism, the teacher as an ideal, complete living, behavior, poetry, and life. Besides the wholly inspirational chapters there are a few which contain material that is more or less practical. For example, a typical vitalized school is described in the last chapter and the socialized recitation in another, in both of which the discussion is concrete and the ideas suggestive. The style throughout is free and easy and especially adapted to the teacher of little training and experi-

ence. The questions and exercises at the end of each chapter suggest that the author expects his work to be used both as a text and as a reading-circle book. In either of these capacities it would be more valuable for what it suggests than for what it contains.

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DAVIS, C. O. *Public Secondary Education*. Chicago: Rand McNally & Co., 1917.

The correct title of this book is "Public Secondary Education in Michigan." After devoting three chapters to the colonial Latin school, the middle period, and the early Northwest, the author begins his discussion with a chapter on early Michigan. Five chapters follow this one, the three most significant being one each on the academy movement, the union schools, and the high schools. It is in these chapters that one finds the explanation of current practices in secondary education in Michigan and to a certain extent in the nation at large.

In the introduction Professor Davis makes the point that the history of secondary education in Michigan is in reality the general history of public secondary education in the entire United States, and that his discussion is a history of public secondary education in America viewed through the lenses of Michigan's history. While there is some justification of this point of view, yet one should not be led to feel that Mr. Davis has written a history of public secondary education in America—something that cannot be accomplished with other than meager results until scholars have done for public secondary education in each state what Professor Davis has done for this phase of Michigan's educational history.

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ROWE, HENRY K. *Society, Its Origin and Development*. New York: Scribner, 1916.

The method of this book is inductive rather than deductive, in which respect it differs from many of the books on elementary sociology. The plan of the writer is to take cross-sections of group life in order to obtain data for generalization, just as the biologist makes cross-sections of laboratory specimens in order to determine structure. By the use of such a method the author emphasizes the concrete rather than the abstract, thus furnishing the beginner a valuable introduction to the study of the principles of sociology as well as a prelude to the various social sciences.

The greater part of the book is devoted to four cross-section views as follows: "Life in the Family Group," "Social Life in the Rural Community," "Social Life in the City," and "Social Life in the Nation." A list of the subjects treated in the cross-section view of community life illustrates the concreteness of the material included therein. The topics are: the community and its history, the land and the people, occupations, recreation, rural institutions, rural education, the new rural school, rural government, health and beauty, morals in the rural community, the rural church, and a new type of

rural institution. Each of these topics receives a somewhat brief but rather concrete treatment, both of which are adapted to the one entirely untrained in the sociological field.

It is the custom at present for some high schools to offer a course in current sociological, economic, and civic problems. To those interested in such a course the book under review will have some interest. While it is not a suitable text for such a course, it does contain much valuable and usable material relative to sociological problems. It is one of the many valuable reference books without the extensive use of which such a course as the foregoing is impossible.

### III. PUBLICATIONS RECEIVED

(Detailed discussions of some of the following books will appear later.)

#### GENERAL EDUCATIONAL THEORY AND PRACTICE

- BETTS, GEORGE HERBERT. *Class-Room Method and Management*. Indianapolis: Bobbs-Merrill Co., 1917. Cloth. Pp. 386.
- BOURNE, RANDOLPH. *Education and Living*. New York: Century Co., 1917. Cloth. Pp. x+236. \$1.25.
- DAVIS, CALVIN O. *Public Secondary Education*. Chicago: Rand McNally & Co., 1917. Cloth. Pp. xiv+270.
- HUGHES, JAMES L. *Training the Children*. New York: A. S. Barnes Co., 1917. Cloth. Pp. 148.  
A stimulating, inspiring, constructive series of essays.
- LEAVITT, FRANK M., and BROWN, EDITH. *Elementary Social Science*. New York: Macmillan, 1917. Cloth. Crown 8vo, pp. 137. \$0.80.
- WILKINSON, WILLIAM ALBERT. *Rural School Management*. Boston: Silver, Burdett & Co., 1917. Cloth. Pp. xiii+420.

#### TEXTS AND SUPPLEMENTARY BOOKS FOR THE HIGH SCHOOL

- ARMAND, EMMA C. *Grammaire Elementaire*. Boston: D. C. Heath & Co., 1917. Cloth. Pp. viii+111. \$0.60.  
Simple in style, written in French, supplemented by copious exercises.
- ASHLEY, ROSCOE LEWIS. *The New Civics*. A textbook for secondary schools. New York: Macmillan, 1917. Cloth. Crown 8vo, pp. xxviii+420. \$1.25.
- HOUSE, RALPH E., and BABCOCK, EARLE B. *Trois Contes de Theuriet*. New York: Henry Holt & Co., 1917. Cloth. Pp. viii+185.  
A legend, a charming story, and a love affair in the early life of the author—all delightfully told. Notes and vocabulary.
- MERINGTON, MARGUERITE. *Holiday Plays*. Five one-act pieces for Washington's birthday, Lincoln's birthday, Memorial Day, Fourth of July, and Thanksgiving. New York: Duffield & Co., 1917. Cloth. 12mo, pp. 164. \$1.50.

OPDYCKE, JOHN B. *Working Composition*. Boston: D. C. Heath & Co., 1917. Cloth. Illustrated. Pp. xiii+337. \$1.28.

Aims to link up English composition with work and all other sorts of human experience; the basis is life-needs; the method used is the finding and solving of problems; expression is thus purposive.

SHERIDAN, BRINSLEY. *The School for Scandal*. Collated and edited by HANSON HART WEBSTER. (The Riverside Literature Series.) Boston: Houghton Mifflin Co., 1917. Cloth. Pp. liii+145. \$0.55 net.

STEMPEL, GUIDO H. (Editor). *A Book of Ballads Old and New*. New York: Henry Holt & Co., 1917. Cloth. Pp. xxxviii+329.

Contains an excellent introduction on the ballad, its origin, style, popularity, and basis of appreciation. A good selection of old, American, and new ballads.

HELLER, OTTO. *In St. Jürgen von Theodor Storm*. New York: Henry Holt & Co., 1917. Cloth. Pp. xviii+147.

McLOUTH, LAWRENCE A., and RICHTER, KURT E. *L'Arrabbiata. Novelle von Paul Heyse*. New York: Henry Holt & Co., 1917. Cloth. Pp. xii+105.

Open Court Publishing Co., Chicago, 1917. *The Complaint of Peace*. Translated from the *Querela Pacis* (A.D. 1521) of ERASMUS. Cloth. 12mo, pp. 80. \$0.50.

#### MISCELLANEOUS

BACON, CORINNE (Compiler). *Children's Catalog of Thirty-five Hundred Books*. New York: H. W. Wilson Co., 1917. Cloth. Pp. 527.

CRABB, GEORGE. *Crabb's English Synonymes*. New York: Harpers, 1917. With an introduction by JOHN H. FINLEY, LL.D., Commissioner of Education, State of New York. Cloth. Pp. 769. \$1.25.

The original work supplemented with many words and their applications made necessary by the lapse of a century of time. Invaluable for desk reference.

FISHER, ANNIE, and CALL, ARTHUR D. *English for Beginners*. Boston: Ginn & Co., 1917. Cloth. 12mo, pp. xix+250. \$0.60.

POWELL, SOPHY H. *The Children's Library, a Dynamic Factor in Education*. New York: H. W. Wilson Co., 1917. Cloth. Pp. xiv+460. \$1.75.

*Proposed Educational Code for Colorado*. Prepared by committee appointed under the Civic and Legislative Bureau of the Denver Civic and Commercial Association in collaboration with educators, school officials, and business men from all parts of Colorado, 1917. Pp. 90.

STAHL, JOHN M. *Just Stories*. Chicago: M. A. Donohue & Co., 1916. Pp. 156. Paper, \$0.25; cloth, blue and gold, \$0.50; postpaid.

*Study of Educational Conditions in Mexico and an Appeal for an Independent College*. Cincinnati: Published for the Committee, 1916. Paper. Pp. 93.

